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*WINTER 2007*

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# LIVING BIRD

WINTER 2007 VOLUME 26 NUMBER 1

## GREETINGS FROM SAPSUCKER WOODS

I just returned from a two-week vacation driving through much of Italy. Although I had never visited many of the areas before, some of the landscapes and habitats looked vaguely familiar.

The rugged coastal mountains of Calabria and Sicily reminded me of places in Central California that I had driven through many times en route from Santa Barbara to San Francisco. And the vast agricultural lands of Puglia were somewhat like the San Joaquin Valley.

But something was very different, and it didn't take long to realize what it was: the birdlife. For one thing, the crows were completely different from ours. They were Hooded Crows and sported a distinctive gray-and-black plumage. And the Eurasian Kestrels were giants, nearly twice the size of American Kestrels. Along remote country roadways, instead of the ubiquitous Red-tailed Hawks of America, I saw dozens of Common Buzzards as well as several Red Kites, riding the wind above me, looking stunning in their reddish-brown plumage and their deeply forked tails. Everywhere I looked, everything seemed so different and fresh.

As I drove along, I realized how much of a focal point birds have always been in my life. They orient me; they show me exactly where I am in the world. And I suspect the same is true of most bird watchers. As much as I love traveling to faraway places, though, I am very glad to be back at Sapsucker Woods, enjoying the cardinals, chickadees, and Blue Jays outside my office window.

*Tim Gallagher*
*Editor-in-Chief*

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**Cover:** A juvenile Northern Goshawk perches in the sagebrush in western Colorado. Juveniles have brown backs and dark vertical streaks in front. Adults have blue-gray backs and dense gray barring in front. Photograph by Robert Palmer.

**Right:** Crested Caracaras are just one of the exciting bird species you can encounter in South Texas at ranch properties participating in the Lens and Land program. Article on page 38. Photograph by Gerrit Vyn.

**Back cover:** A female Downy Woodpecker searches for prey under the bark of a decaying tree. This species, North America's smallest and most common woodpecker, is a regular visitor to backyard feeders in winter. Photograph by Gerrit Vyn.

# LIVING BIRD

WINTER 2007 VOLUME 26 NUMBER 1

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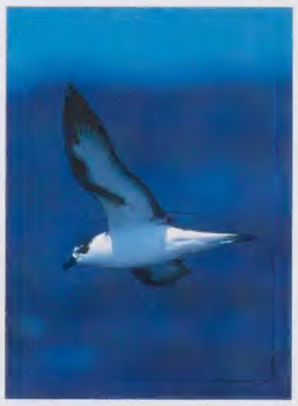
## *Letters*

### SEABIRD CONSERVATION

Thank you for the beautifully written and illustrated article "Sons of the Sea," by Brian Sullivan, which appeared in your summer issue. While the article mentioned many of the threats to seabirds, I thought it might also be of interest to highlight some of the solutions being pursued by conservation groups.

The threat posed to albatrosses by longline fisheries cannot be overstated; however, longline mortality has been reduced by 85 percent over the past decade in the Alaskan and Hawaiian fisheries by the use of bird-scaring streamer lines advocated by the American Bird Conservancy and other conservation groups.



The breeding grounds of the Black-capped Petrel in the Dominican Republic are also a focus for conservationists working with the Dominican government and national conservation groups there to implement a management plan for the Bahuroco region, a key breeding area for the petrel (and an important wintering area for Bicknell's Thrush).

Among the many other seabird projects underway are successful efforts to remove rats and cats from breeding colonies of Xantus's Murrelet and Hawaiian Petrel and support for seabird bycatch reduction programs in South American fisheries and elsewhere.

*Michael J. Parr, Vice President*
*American Bird Conservancy*
*Washington, D.C.*

### RETURNING FALCONS

Thanks for the nice editorial on Peregrine Falcons returning to their native breeding cliffs in Southern California. ("Greetings from Sapsucker Woods," Summer 2006). In Northern California, we also have one return that I know of. According to the Forest Service biologist in the Placerville office, a pair of peregrines is occupying a nest ledge on a cliff west of South Lake Tahoe. For many years before that, a pair of Golden Eagles used the cliff, but rock climbers apparently disturbed these birds, and about five years ago, they left. A couple of years later, the Peregrine Falcons moved in. Conservationists spoke with rock-climbing groups and asked them to respect the site during nesting season. Apparently they did so. I was told a few months ago that the peregrines had successfully hatched a clutch. How many fledged, I haven't yet heard.

In December 2004, I received a first-year male Peregrine Falcon, who had been wingshot about 30 miles from that nest site. No way to know if the bird was hatched locally, but I like to think so. He is calm enough to be doing well as an education bird for a local rehabilitation group, but he can never fly again.

Across the western slope of the northern Sierra, most mountain lakes, even small ones, now have nesting Bald Eagles, still listed as winter migrants in this area, even by recent books. The Ospreys have been nesting in our area for 15 years. The Bald Eagles came here about three or four years ago. Two pairs of Ospreys and one Bald Eagle pair share a nearby medium-sized mountain reservoir, elevation about 4,500 feet.

*Sallie Reynolds*
*Placerville, California*

We welcome letters from readers. Write to The Editors, *Living Bird,* 159 Sapsucker Woods Road, Ithaca, New York 14850, or send email to <livingbird@cornell.edu>.

BLACK-CAPPED PETREL BY BRIAN PATTESON

## *In Memoriam*

# *William A. Burnham*

## *(1947–2006)*

The world of raptor conservation lost a vital friend this past October when Bill Burnham passed away from brain cancer at the age of 59. To many of us who knew him, it is still difficult to accept the fact that he's gone.

I've never met anyone with more energy, drive, and determination than Bill Burnham. He was president of The Peregrine Fund for 20 years and, despite the ever-growing administrative duties of running the organization, he still took part in research projects, traveling each year to Greenland and other faraway places.

I was fortunate enough to go to Greenland twice with Bill and his son Kurt. No one worked harder than Bill on these expeditions. He was an inspiration to all of us. I'll never forget standing with raptor biologist Jim Enderson below a Peregrine Falcon eyrie in northern Greenland, peering through a spotting scope and talking to Bill via walkie-talkie, trying to help him locate the nest ledge so he could band the young. He had carried the climbing gear to the top of the lofty cliff from the other side and tied his rope to a boulder. Because it was a cold day, he wanted to get in and out quickly, to avoid stressing the young falcons. He made three lightning-fast rappels, using ascenders to climb back up each time before finding the correct ledge, then he banded the young and got out of there in a matter of minutes.

Bill grew up in Colorado, where he became interested in falconry as a 15-year-old. Amazingly, the first raptor he flew was a Golden Eagle. He began studying falcons in Greenland in the early 1970s and completed a master of science degree at Brigham Young University based on this work. Bill played a vital role in restoring the Peregrine Falcon to areas of North America from which it had been extirpated. He joined The Peregrine Fund in 1974 and set up the western falcon-breeding facility at Fort Collins, Colorado. He was elected to the Board of Directors of The Peregrine Fund in 1977 and was named as a Founding Member in 1982. While completing a Ph.D. at Colorado State University in 1984, he still found time to lead the construction of the World Center for Birds of Prey in Boise, Idaho.

*Bill Burnham poses with two newly banded white-Gyrfalcons in Greenland, moments before they were released.*

PHOTOGRAPH COURTESY OF THE PEREGRINE FUND

Bill became president of The Peregrine Fund in 1986, a position he held until this past May, when his illness became too advanced. Under his leadership, the organization grew exponentially and expanded its focus far beyond North America and the single species it was established to save. Harpy Eagles, Teita Falcons, Orange-breasted Falcons, Asian vultures—more than 95 species in 55 countries were the focus of Peregrine Fund research and conservation efforts during his tenure.

The author of more than 90 scientific papers, Bill also wrote a memoir of his life with raptors—*A Fascination with Falcons*—and was co-editor, with Tom Cade, of *Return of the Peregrine*, a chronicle of the struggle to save the American Peregrine Falcon.

After being very near death earlier this year, Bill had surgery to give him temporary relief from some of the debilitating effects of his illness. Almost immediately, he was making plans, wanting to get back into action, like a human dynamo who could not be stopped. This past summer, he actually made one last trip to Greenland, a place that had meant so much to him for so many years. Although he was too ill to go into the field, he would wait eagerly for the researchers to get back so he could talk with them about what they had seen.

Bill Burnham will be greatly missed by all who knew him. He is survived by his wife, Pat, and his son, Kurt, who has followed in Bill's footsteps and is studying falcons in Greenland.

*—Tim Gallagher*

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*Spotlight*

# A RARE OPPORTUNITY

*by David S. Wilcove*

## *Winning peoples' hearts and minds on behalf of bird conservation*

I remember the first time I met Paul Butler, although I doubt he remembers me. It was the spring of 1985, and I had just finished my doctoral dissertation on the decline of migratory songbirds in eastern North America. I somehow had managed to weasel my way onto the program for the Second Conference on Conservation Biology, and I found myself in a large auditorium at the University of Michigan's School of Natural Resources, just an hour or two away from presenting my own research results. I was both excited and terrified. All around me were some of the biggest names in the newly emerging field of conservation biology, men and women whose papers I had read and reread, discussed and debated as a graduate student. For a day and a half, a succession of eminent speakers had been stepping up to the podium and presenting their latest empirical studies and models of population persistence, species diversity, coadaptation, inbreeding depression, tropical deforestation, and all the other things conservation-minded scientists worried about. I was excited about some of the data I had gathered, I was pretty sure I had subjected them to the right statistical tests and so forth, but I also had enough butterflies in my stomach to rival the monarch migration. What if I had overlooked some fatal flaw in my experimental design? What if I had put the slides in backward? (We're talking long before PowerPoint). What if I fumbled my presentation? Would my career be over? (Over? It had not even started!)

COURTESY OF RARE

*Paul Butler (center) promotes conservation by encouraging people to take pride in their indigenous wildlife. Above, he poses with four students in Bogor, Indonesia.*

A polite round of applause signaled the end of another talk and brought my attention back to the conference itself. The moderator introduced the next speaker, and a tall, thin fellow with shoulder-length hair stepped up to the podium. Paul Butler. Not a name I recognized. Why hadn't I read any of his papers? What was his area of expertise? Population genetics? Habitat fragmentation? Evolutionary ecology? The answer, I quickly learned, was none of the above. His specialty was people.

Butler took the microphone, scanned the audience of eminent graybeards and young wannabes, and pulled no punches. Conservation, he argued, is as much about changing people's attitudes as it is about gathering data or developing new theories. If you really want to save biodiversity in developing countries, you have to make sure the people in those countries want to save it, too. And Butler thought he had come up with some useful techniques for winning the hearts and minds of people . . . especially their hearts.

He described his efforts to save the St. Lucia Parrot, the most endangered bird on the little Caribbean island of St. Lucia. (St. Lucia also happened to be Butler's home, where he worked for the Forestry Division.) The parrot's problems were legion: the forests where it lived were being chopped down, individual parrots were being shot for food or sport, and unscrupulous pet owners in other countries were paying small fortunes to add St. Lucia Parrots to their collections. No more than 100 of the colorful green, blue, and red parrots remained in St. Lucia's dwindling forests, and some ornithologists were predicting its imminent extinction.

But Butler understood something

DAVE WATTS/NPL/MINDEN PICTURES

*When Paul Butler became involved in the effort to save the St. Lucia Parrot, no more than 100 of these colorful birds existed. He launched a campaign to instill in the people of St. Lucia a sense of pride in their wonderful indigenous parrot.*

the doomsayers didn't. They knew the St. Lucia Parrot's restricted range made it highly vulnerable to extinction. Butler, however, reasoned that maybe, just maybe, the fact that the parrot occurred only on St. Lucia could be the key to its protection. What if the people of St. Lucia came to see the bird as a national symbol, as something unique to St. Lucia that exemplified the very best of that country's cultural and biological heritage? And so Butler launched a campaign on behalf of the St. Lucia Parrot, a campaign whose simple goal was to instill in the people of St. Lucia a sense of pride in their wonderful (but endangered) bird.

He commissioned a song about the bird and got the national radio station to play it. He passed out buttons, bumper stickers, and posters featuring the parrot's image along with the message that St. Lucia's special bird was in danger of disappearing. He met with members of the clergy and urged them to talk to their congregations about the St. Lucia Parrot, which they did. And Butler and his colleagues in the Forestry Division reached out to St. Lucia's schoolchildren. Dressed in a giant parrot costume, he visited virtually every elementary school in St. Lucia, singing and dancing with the children, and telling them all about their beleaguered parrot. At the end of the school day, when the kids went home, they were eager to tell their parents about the strange and colorful visitor to their school. And so, with a combination of music, art, and merriment, Butler made the St. Lucia Parrot a symbol of St. Lucia itself.

Within a few years, poaching and smuggling of St. Lucia Parrots were on the decline; the government created a nature reserve to protect the bird's habitat; and people throughout the island were now aware of its special status. Today, the population of St. Lucia Parrots is over 600 and growing. The species is not out of danger, but its future is far brighter than anyone could have imagined 20 years ago.

Butler eventually left the Forestry Division and signed on with the conservation organization Rare. He ran a couple more campaigns on behalf of other endangered Caribbean parrots, and in each case the outcome was the same: a reduction in threats, the creation of new protected areas, heightened public interest in the species. But he soon realized that he could have an even greater impact by training local people to run their own campaigns in their own communities. Hence, Butler and colleagues developed a training program and instruction manual that enabled them to teach their unique approach to others. Rare, in turn, embraced his concept of conservation through local pride and encouraged him to adapt it to other parts of the world. Rare subsequently has run more than 70 "Pride" campaigns in Latin America, Africa, Asia, and the Pacific. The campaigns have utilized a wide range of flagship species, from rare swallowtail

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butterflies in Jamaica to sea turtles in Mexico to crane flowers in South Africa. The specific objectives have varied from place to place, depending on what was needed. In St. Lucia, the goal was to stop the poaching of parrots and the destruction of their forest habitat; in Indonesia's Komodo National Park, it was to stop destructive fishing practices that were degrading the park's legendary reefs. But in all cases, the basic strategy has been the same: reach out to the people who live in the affected areas and make them care about conservation. In collaboration with educational institutions in England, Mexico, and Indonesia, Rare annually teaches dozens of future conservation leaders from developing countries the techniques pioneered by Butler and colleagues. (Full disclosure: for a number of years I have served on Rare's board of directors, for which I receive no compensation.)

Rare recently commissioned a retrospective examination of its Pride campaigns, and the results with respect to parrots, at least, are quite interesting. Rare has undertaken seven campaigns in the Caribbean on behalf of eight imperiled Amazons. (The campaign in Dominica targeted two species, the Imperial Parrot and the Red-necked Parrot). Seven of those species currently have increasing or stable populations, none is decreasing, and one has not been studied well enough to determine its population trend. Rare then looked at 13 other rare Amazons in the Caribbean and Latin America that have not been the subjects of Pride campaigns. Of those 13 species, only 1 is increasing, 12 are decreasing, and 1 has not been surveyed adequately to determine trends. Although not conclusive, the data strongly suggest that Rare is on to something with its innovative approach to conservation.

Those who work in the field of international conservation are increasingly convinced that parks and other reserves will not endure unless the people living in and around these places feel they benefit from their existence. A great deal of time and effort are now being spent quantifying the benefits of parks, usually by tallying the value of the goods and

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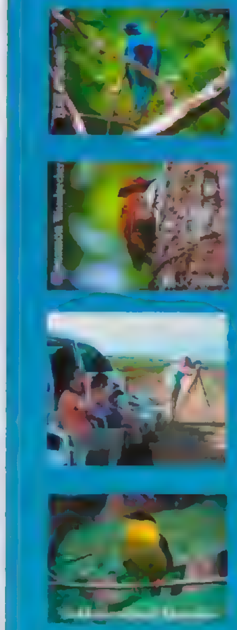

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*Following Butler's success with the St. Lucia Parrot, Rare has run more than 70 "pride" campaigns to help sea turtles (above), butterlies (below), and other species.*

services they provide, such as drinking water or game or ecotourism. I think it's a great idea. But we should never lose sight of the fact that not everything we value comes with a price tag. Paul Butler and Rare have demonstrated that people around the world, including those who are poor and underprivileged, can be inspired to feel great pride in their natural heritage. In the long run, that sense of pride may foster a more durable conservation ethic than one based solely on dollars and cents.

For the record, my talk at that conference at the University of Michigan went quite well, and the resulting paper attracted a fair amount of attention in scientific circles. But 20-plus years later, I cannot with any confidence point to a single species that I know to be better off because of it. Paul Butler, on the other hand, should have no doubts about the importance of his work. ■

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*Further information:*
<www.rareconservation.org>

CHRIS AYERS

BIRDING JOURNAL #379

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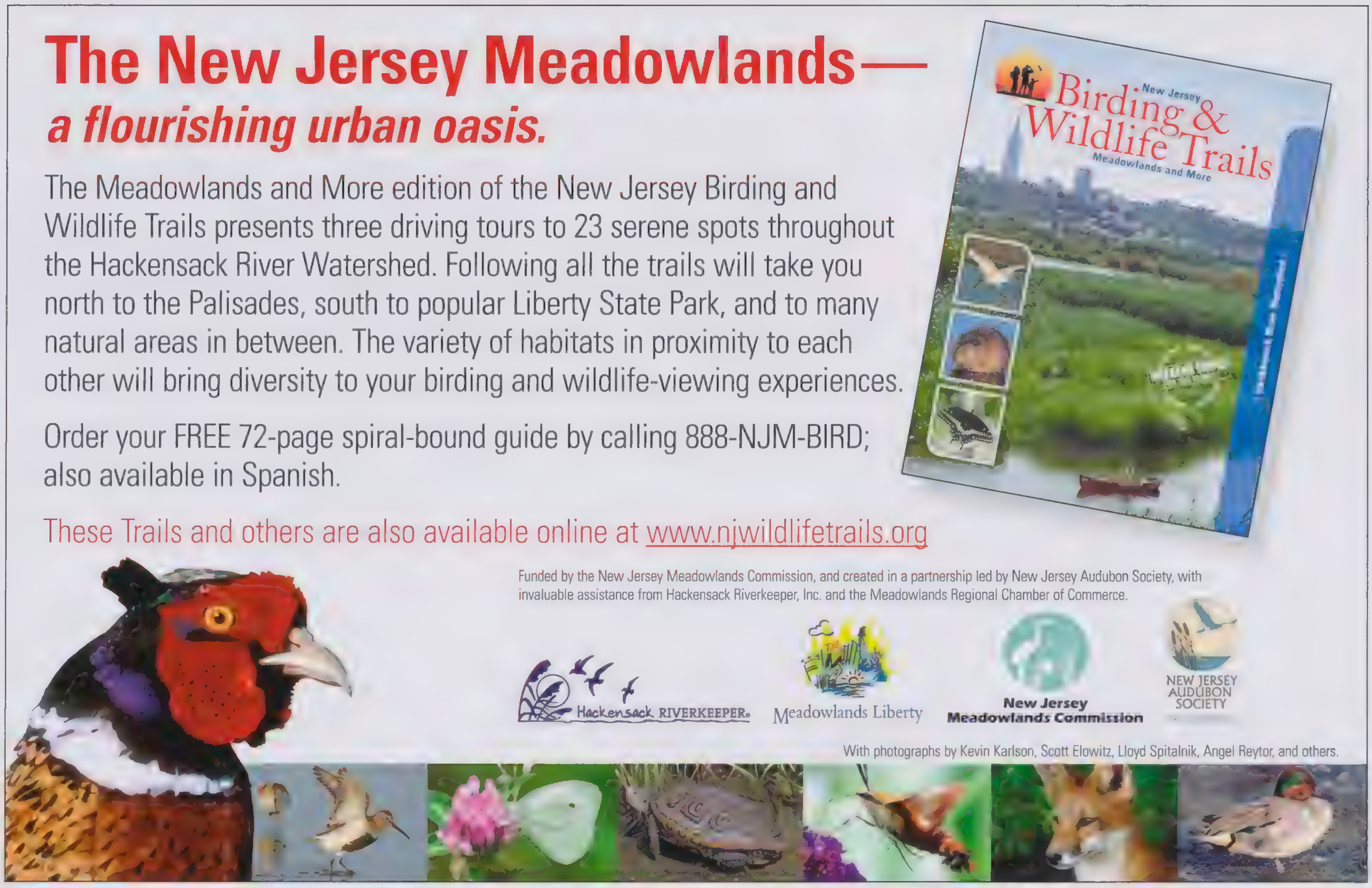

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# MONITORING WINTER SURVIVAL

BY KRISTI STREIFFERT
PHOTOGRAPHS BY TOM STREIFFERT

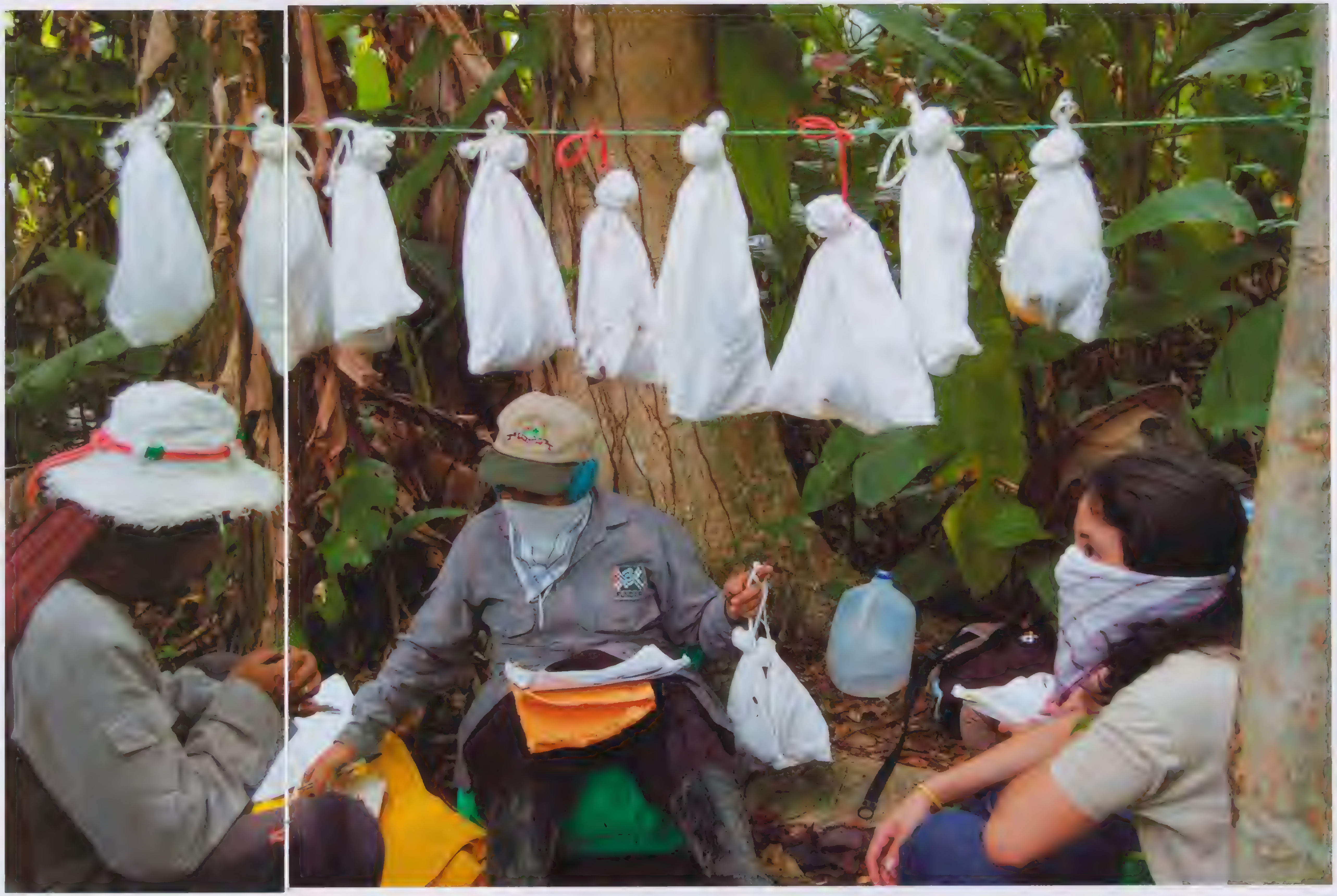
## *Bird research in the tropical forests of Nicaragua*

The American Pygmy Kingfisher in my hand made it hard for me to remember why I was here. Although it was almost as tiny as a hummingbird, it had an attention-getting bill. Moments later I was excitedly snapping a picture of a Passerini's Tanager that had been captured in the mist nets we were monitoring.

But wait, I'm not here to observe Central America's resident birds.

Hey, is that a Bronzy Hermit?

Right, right. Back on task. I am in Nicaragua's Los Guatuzos Preserve, just north of the Costa Rican border, to help bird researcher Heydee Herrera with the MoSI Program. The initials stand for Monitoreo de Sobrevivencia



*Researchers at Los Guauzos Preserve in the lowlands of southern Nicaragua band newly trapped songbirds for the MoSI program (above). At left, author Kristi Streiffert checking mist nets. Head nets or bandanas over the mouth were necessary equipment in the buggy conditions of the forest.*

*Above, a patchwork of forest in the highlands of Nicaragua. Poverty-stricken residents scratch out a living by clearing forests for cattle grazing and subsistence farming.*

Invernal in Spanish, and in English, Monitoring Overwintering Survival. Researchers set up mist nets in a variety of distinct habitats, then capture Neotropical migratory birds that winter there, record data about each bird, and band them for future study before releasing them. The researchers also capture and record data on resident birds—the ones so enchanting to me and other visitors—and are working on a protocol to include them in studies, too. The work takes place for two or three days a month for three to five months between November and March.

This program, a spin-off from the Institute for Bird Population's very successful Monitoring Avian Productivity and Survivorship (MAPS) program, is in its infancy and can use all the help it can get—even from amateurs like me. As with MAPS (which during the breeding season in North America has 500 monitoring stations to research migratory birds), the goal of banding and data collection is ultimately aimed at helping land managers to make effective decisions to counteract declines in migratory bird populations.

But unlike MAPS, MoSI has only 80 stations, most of which are struggling with staffing, funding, and complicated logistics. MoSI's efforts are focused on Central America, Mexico, and the Caribbean islands, where the majority of Neotropical migratory birds spend the winter. These areas, unfortunately, continue to struggle with poverty and escalating environmental degradation.

David DeSante, executive director of the Institute for Bird Populations (IBP), which spearheads both MAPS and MoSI, expresses the unequivocal urgency of the situation. Migratory bird populations "are going to keep slowly declining unless we really start addressing the problems in the tropics." IBP points out that tropical deforestation and habitat degradation are grave threats in the Mexican and Central American areas that MoSI covers. Not only that, but global climate change will probably damage many highly specialized habitat relationships in the Neotropics.

The U. S. Fish and Wildlife Service (USFWS), which oversees some of the funding for MoSI, notes that "data suggest that long-term population trends of forest-inhabiting migratory birds are primarily driven by their winter survival rates." DeSante puts it even more bluntly. "Of all the funds spent to address declines in migratory species, the vast majority is spent on the birds' breeding grounds. Now, if the bottleneck is winter survival, and you put all your efforts into increasing hatchlings, you are just increasing the number of birds that die each winter."

In Mexico and Nicaragua, where I have lived for the past five years, I've seen firsthand the crushing daily struggle of the people to find work and to come up with enough money for food, clothing, and education. Although some Central American nations are starting to see their dreams of economic viability come true, many people throughout the region remain extremely poor. According to the World Bank, the yearly GNI (gross national income) per person for Mexico is $6,790, compared with $41,440 for the United States. But Mexico is rich compared with Honduras and Nicaragua, where the GNIs are $1,040 and $830, respectively.

This economic reality directly affects both bird habitat and research. Conditions are difficult for local researchers, who don't have steady paychecks. They live and work in circumstances that would be trying for most Americans. Though the locations where they conduct research are rich and varied, ranging from coastal mangroves to cloud forest to dry tropical forest, these lands are under constant pressure from squatters looking for a place to eke out a living.

To reach the MoSI station I visited, Heydee Herrera and I had traveled in my SUV from Managua (Nicaragua's capital) for two hours by paved road, then five hours along a wide, rutted dirt track. Next we boarded a small boat made available to me by a local conservation group on the condition that I pay for gas. We traveled for another two hours to get across Lake Nicaragua (the largest lake in Central America) before wending our way up the Papaturro River and finally arriving at a tiny community without roads or electricity. Though for me the trip was a long, tiring adventure, for Herrera, it was the height of luxury. She

*Right, author Kristi Streiffert with boatman and MoSI assistant Raul Aquilar travels along the Rio Frio between MoSI stations in southern Nicaragua.*

*Heydee Herrera (above), the biologist in charge of the Los Guatuzos monitoring station, fills out MoSI data sheets on the birds they trap.*

usually takes one of the big ramshackle buses that leave Managua early in the morning and arrives at the lake nearly 10 hours later, then spends the night in the lakeshore town of San Carlos to catch the twice-weekly public boat that lands in Papaturro after five puttering hours. After spending two days at one station, she catches another public boat to her second station, monitors that for two days, and then repeats the long bus ride back to Managua.

Due to a lack of funds, she does all of this on essentially a volunteer basis, though she is a trained biologist. Each MoSI station was supported in 2005–06 by a grant of $640. This funding, which covers staffing, transportation, and equipment, is a hodgepodge of cooperation. One of the biggest funding sources is a matching grants program received through the Neotropical Migratory Bird Conservation Act Grants Program, administered by USFWS. MoSI's funding still would not come anywhere near to supporting the program if it were not for the unpaid participation of Latin American field ornithologists and biology students, along with some additional money cobbled together from various academic and conservation organizations. It is estimated that the program would be more sustainable with around $2,000–$3,000 per station. As DeSante says, "The biggest difference between MAPS and MoSI is that most MAPS stations receive support from an organization or location, such as an Audubon reserve, forest preserve, or state park, and there is money in their budgets to support the research." Many of these Canadian and American locations even have paid researchers on staff.

Claudia Romo, the MoSI coordinator for Mexico, fears that lack of funds could jeopardize MoSI. "The funding we get is very little considering the importance of this project," she writes in an email. "I do not consider it fair that, though our project is [supporting] the Neotropical Migratory Bird Conservation Act, we get a very small quantity of money to support us. We urgently need more funding to keep this project going."

Salvadora Morales, MoSI coordinator for Central America, expresses concerns similar to Romo's. Almost all of the ornithologists in Nicaragua (there are fewer than a dozen by even the most liberal definition of ornithologist) have to support themselves with other full-time employment, such as teaching school. For example, in addition to being MoSI's coordinator for Central America (which pays a stipend of $1,600 per year), Morales worked at a city government office until a recent Nature Conservancy grant to study the Golden-cheeked

Warbler promised her at least six months of stable income per year. "It is very difficult to hold down a job and run a MoSI station. You can't tell your employer that you need a few days off from work each month for five months out of the year."

Manning the stations on weekends, as most volunteers in the United States would do, isn't a good option. For one thing, many Latin American jobs require employees to work half a day on Saturdays. For another, it takes a day's travel by bus to reach the MoSI stations.

The logistics are not insurmountable, "but this worries me a lot," says IBP's director DeSante. "We have well-trained biologists in Central America, but it is hard for them to continue without stable work."

But Peter Pyle, author of a handbook titled *Identification Guide to North American Birds*, has trained many of the banders and says that the strong commitment of Central American bird researchers offsets the fact that they have to struggle to find stable incomes. "The best part of my career is being able to help train Nicaraguans and others who have such enthusiasm and good will. They have the passion and enthusiasm to get this done."

And, indeed, Morales is full of fundraising plans for next year. "I want to organize a birding marathon, like one that was held in El Salvador this year." She also hopes that birding-oriented ecotourism will flourish and begin to raise funding support from tour operators and ecotourists.

Pyle says that these researchers understand that "the value of what they are doing is well worth the effort and personal sacrifice, which in this case is relatively small in comparison with what they deal with on a day-to-day basis."

As with Pyle, my favorite moments in Central America have been those spent with bird researchers such as Heydee Herrera and others. These indomitable young men and women inspired me during my time in Nicaragua to try to visit each of the MoSI stations in the country. I trekked from organic coffee plantations to lowland dry tropical forests to the top of a volcano with cloud forests, just for the opportunity to spend time with these devoted bird conservationists. (Okay, maybe the chance of seeing an Emerald-chinned Hummingbird and a Mountain Elaenia figured into my travel plans, too.)

It was an education in many ways. For one thing, after visiting seven monitoring stations in Nicaragua, I think I may finally

*This Wood Thrush (above) was one of the few migratory birds captured during the author's watch. Even though migratory birds are the target of the MoSI investigations, few of the birds captured are migrants. At left, Herrera's field assistant, Raul Aquilar, is learning the finer points of data collection.*

*At right is a view of the habitat around Finca Esperanza Verde, an organic coffee farm and ecolodge that is working to establish a new MoSI mist-netting operation.*

## HOW YOU CAN HELP

The Institute for Bird Populations offers an "Adopt a MoSI Station" program. When an individual or group sponsors a station with at least $300, the sponsor receives photographs and updates from that station. Contact Peter Pyle at IBP at <pplyle@birdpop.org>. You can mail a check made out to IBP to Peter Pyle, The Institute for Bird Populations, P.O. Box 1346, Point Reyes Station, California 94956-1346; web site: <www.birdpop.org>.

Convincing your local conservation area or organization to collaborate with this program would also be helpful. Bruce Peninsula Bird Observatory, for example, made MoSI a priority and has contributed $1,000 per year to specific stations. Check out the program's web site at <www.bpbo.ca>. Contact the Institute for Bird Populations <www.birdpop.org> to coordinate funding.

## TRAVEL

Ecoquest, one of the few international tour companies offering natural history trips to Nicaragua (and the only one that has birding expertise) has been supporting the establishment of a MoSI site at a cooperative organic coffee plantation and ecolodge <www.fincaesperanzaverde.org> in central Nicaragua.

The company offers yearly trips to the station and travelers' fees and donations support the program. Visit their web site at <www.ecoquesttravel.net>.

stop perceiving White-eyed Vireos, American Redstarts, and Indigo Buntings as North American species and see them as they really are—winged creatures with an astounding ability to be equally at home in two vastly different settings. The Central American ornithologists I met told me that studying these birds is a privilege and a pleasure. For one thing, they aren't that common—fewer than 20 percent of the birds they capture in MoSI mist nets are Neotropical migrants. Birds such as Tennessee Warblers, Ovenbirds, and Wood Thrushes are always greeted with particular excitement. "After all," says Morales, "these birds are here with us seven or eight months of the year, and they are an integral part of the avifauna of our region."

"There is so much to learn," she adds. Researchers are just beginning to work out even a vague outline of how migratory birds interact

with resident species. She says scientists have realized that both migratory birds and resident birds operate out of set territories. This raises many questions about how those territories are established, how resident and migratory bird territories interrelate, and what kind of competition takes place.

Spending time with MoSI researchers, helping to monitor 16 nets several times a day and seeing the researchers record page after page of data, I wondered how all these marks and letters on sheets of paper could be reduced into something useful. Can a set of codes really explain how delicately beautiful a Tennessee Warbler is and how important just one bird—held in the hand—can seem? Can that set of codes be combined with countless others and made into something meaningful?

This is where the Institute for Bird Populations comes in. "After the MoSI researchers send us the information they've gathered, it is verified, then analyzed," says DeSante. Eventually researchers hope to show overwinter survival as functions of age, sex, habitat, geographic location, and weather. It is then that the results and analysis can be used to formulate management strategies for wintering grounds.

When you are in the field with MoSI researchers, fending off mosquitoes and craning your neck to watch monkeys, which are just as avidly watching you, it is easy to forget how fragile these tropical habitats are—how permanent they can be. With the laughter and camaraderie of a bird-banding session, it can be easy to forget funding problems, too. But as I release a newly banded Ovenbird, DeSante's voice echoes in my mind. "We haven't turned this around yet. We are going to have to be very smart about how we proceed."

Watching the bird fly away, I think to myself that one of the smartest things we could do would be to support MoSI and young researchers in every way we can. ■

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*Kristi Streiffert is a freelance writer who was based in Nicaragua for the past two years and now lives in Cyprus. She is a frequent contributor to this magazine.*

*A birder hikes the trails of Finca Esperanza Verde, where researchers are beginning to document migratory bird populations (above). Researchers will use the data they gather to improve habitat management in the region. This male Hooded Warbler (below) was netted in riparian habitat in southern Nicaragua.*

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# Grosbeaks: A Remembrance

Text and Illustrations by Julie Zickefoose

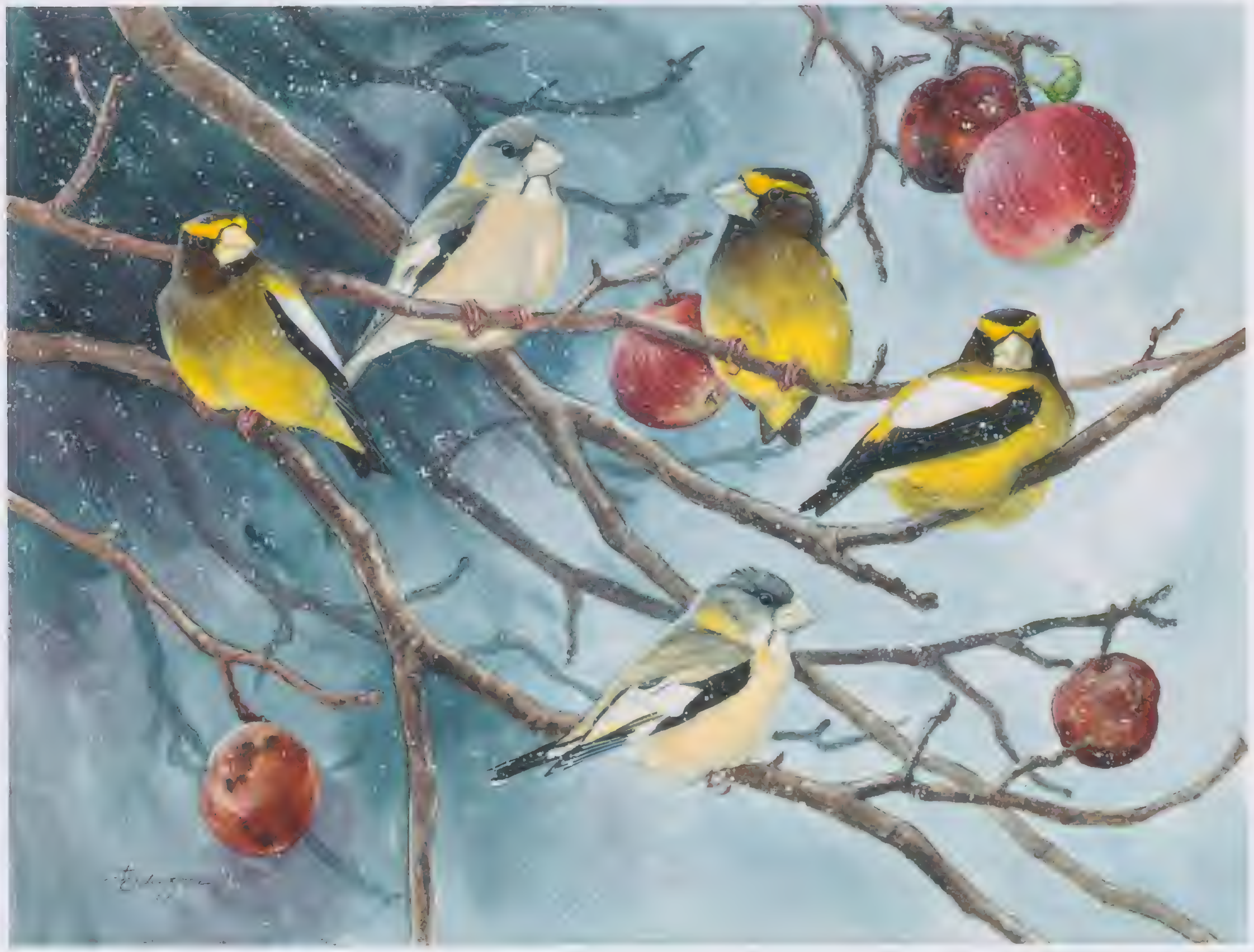
## *A childhood recollection of a winter long past*

It must have been 1967. Our family room was done up in Early American: Bald Eagles with spread wings were on everything. Four Audubon prints, a little faded, hung over the couch—the Harris's Hawk, the Whimbrel, the bobwhite, and the Wild Turkey hen with brood. I stared at them for hours, especially when I was home sick, lying in luxury, wondering what it would be like to do nothing but draw birds instead of going to school.

That winter was snowy for Richmond, Virginia—big blankets of heavy, wet snow that made a mess of the streets and the southern drivers, not to mention their cars. I loved nothing more than awakening on a school day to see that special snow light peeping under the shade, the white, pure light that sets a child's heart singing with the hope of sleds instead of homework.

On one such morning I tore downstairs to find my mother and father craning their necks out the kitchen window at a flock of strange birds in our sweet gum tree. They were mustard yellow, black, and white, though some were gray, with pied wings. A ringing *cleer!* call punched through the stillness and snow quiet. Several sat on the simple table feeder that my father had welded from a pipe and a steel plate. They had already cleaned up the sunflower seed there and seemed to be looking for more. We'd never seen anything like them. "Giant goldfinches!" I yelled, as I ran for my well-worn *National Geographic Song and Garden Birds of North America.*

They were Evening Grosbeaks, of course, and there were 60 of them, a flock such as I've never had since at any feeder. They showed up around Christmas and stayed into spring. We began buying striped sunflower seed in 50-pound bags. This was a pretty extravagant purchase in 1967. I got up early every morning to put seed out for the flock, which my father referred to as "Julie's chickens." We loved to watch them squabble over the food, and we loved the way they looked, hanging in the trees like ornaments. At about the same time, my father, who always spent his free time in his basement workshop, became secretive and wouldn't let me watch him work as he always had. I suspected he was making something for me.



On Christmas morning, I awoke to the familiar sound of grosbeaks fighting and feeding, but it was unusually loud. On the dining room windowsill was a feeder, the grandest one ever made, with a long dowel perch and a Plexiglass top to keep the seed dry, with drainage holes and a new coat of gray paint. It was three feet long, and the grosbeaks crammed into it by the dozen to wade in sunflower seed.

It was my Christmas present, and I can't remember one before or since that

BHL

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*Above, author Julie Zickefoose as a child sits with her father, looking through a sheaf of Audubon bird prints that he had gotten for her. "It's the only picture I have of just us two together," she says, "but it speaks volumes about our relationship."*

has thrilled me so much—not a bicycle or guitar, a book or a trip.

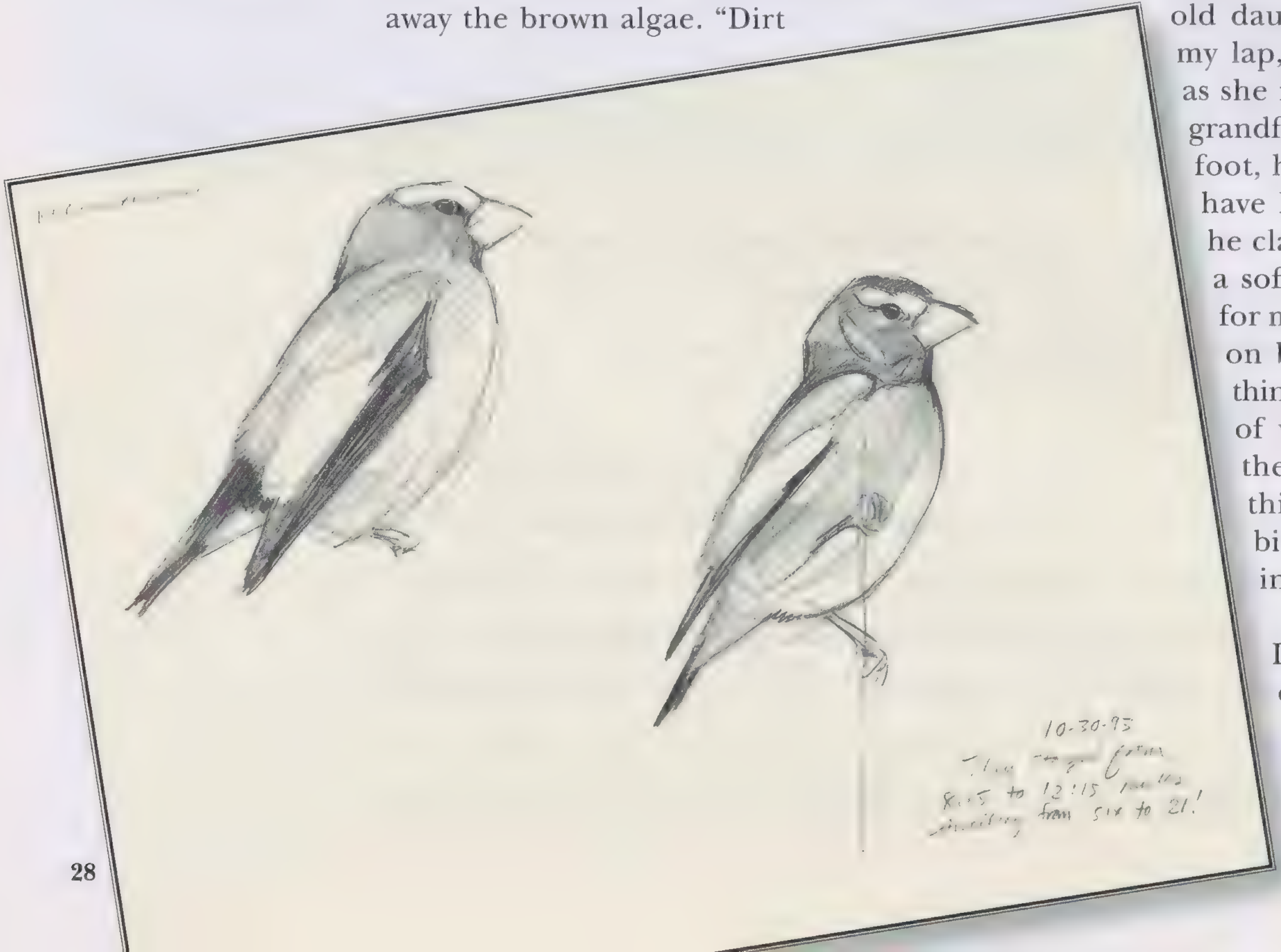
My father was to make many more feeders, always from found materials—hubcaps and plastic pipes, odds and ends from the warehouse of the pipeline company where he worked. The most elegant piece he produced was a birdbath constructed of steel pipe welded to an old harrowing disc. Its edges are gently scalloped from wear, and the iron is pitted from years of immersion. It is the perfect depth for a goldfinch to wade into, the perfect width for a whole family of bluebirds to crowd into. Dad painted it a creamy white to look, as he said, like a destroying angel mushroom, and it does. He showed me how to scrub it out with a lump of sod, soil still attached, scouring away the brown algae. "Dirt cleans pretty well," he used to say. "Your mother wouldn't agree, but it does."

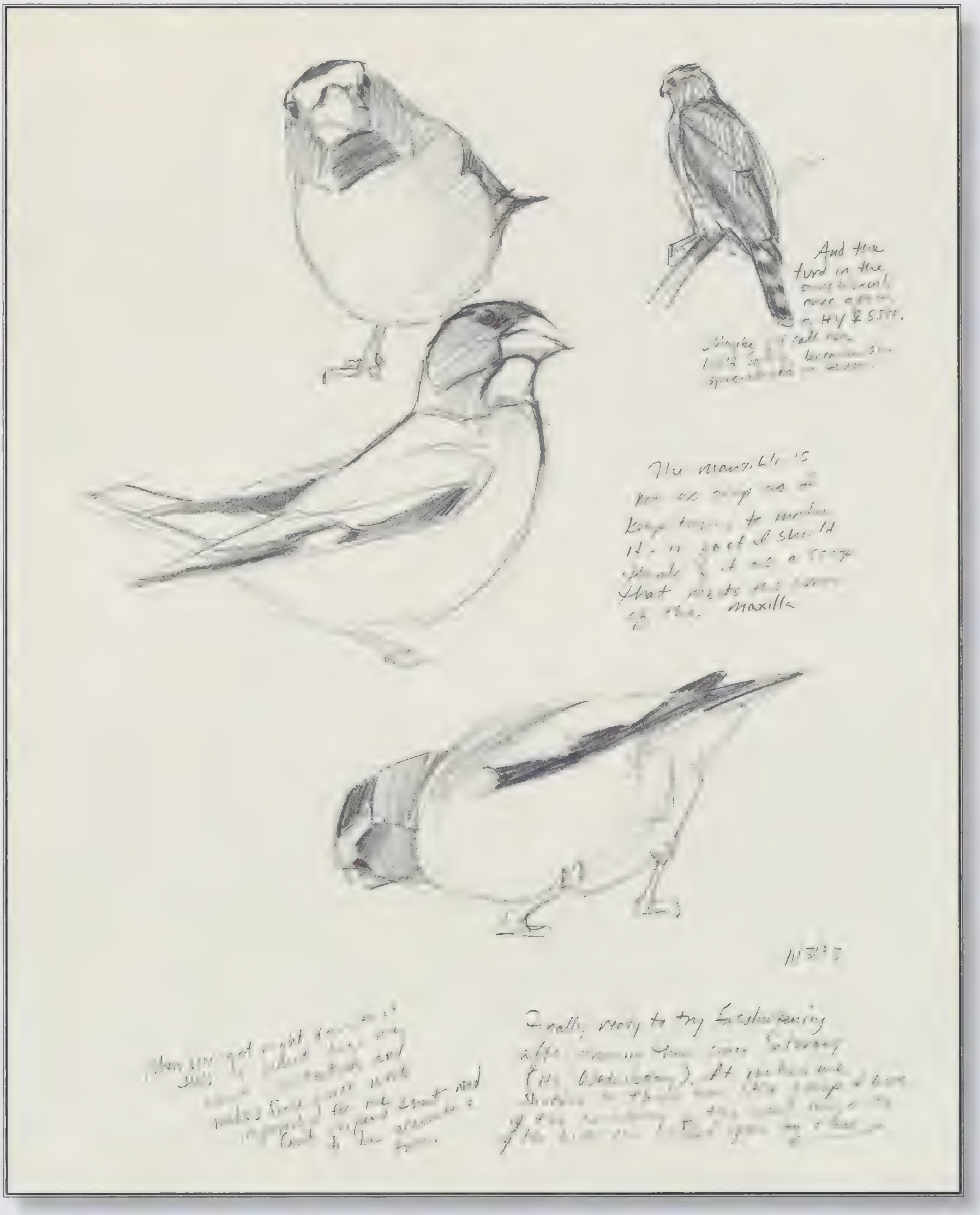
The windowsill feeder finally rotted apart in 1991, and my father died in 1994. When we cleaned out the big house, I got a checkerboard he'd made, a table he'd constructed from an iron sewing machine stand and a plank of fine cherry, an ancient Scots rocker he'd refurbished, and the mushroom birdbath. It stands in my front yard, surrounded by flowers, and I still clean it with a lump of sod.

I have a picture of my dad sitting with me on the living room carpet, looking through a great sheaf of Audubon prints he'd gotten for me. He's in an old short-sleeved shirt, the front smeared with grease and oil, varnish and paint from old projects. I'm in heavy black Buddy Holly glasses and short hair, a good look for a hardened tomboy. It's the only picture I have of just us two together, but it speaks volumes about our relationship. Youngest of five children, I latched onto my dad the hardest, following him around the yard as he gardened, learning his craft seed by seed, weed by weed. I feigned an interest in antique gasoline engines because he would take me out with him, looking for them on long drives through the Virginia countryside. Where there were iron wheels peeking from the weeds, there were bound to be birds, and I wore the pebbled finish of his old German binoculars smooth watching them. We became good at evaluating tumbledown sheds for both their machinery and their Barn Swallow potential.

I am writing this with my three-month-old daughter lounging on a pillow on my lap, her legs hanging off one side as she nurses. She will never know her grandfather, never feel him squeeze her foot, hear him say, "This baby likes to have her foot squeezed"—something he claimed about every baby. He had a soft spot for little girls, as he had for me. I miss him. I realize only now, on becoming a parent, that all the things a child becomes are outgrowths of who our parents are and what they do. I am grateful for all the things he was—farmer, gardener, bird watcher, handyman, teacher, inventor, teller of stories.

I started with grosbeaks, I know. I can't see them without thinking of my father. They come like a memory, unbidden, unexpected, hanging in the bare branches like scattered thoughts. They are





beautiful and always welcome, though I always seem to be out of seed when they show up. Every time, I do a one-woman Three Stooges routine upon hearing their calls. I check the feeders—nearly empty. If I don't get the seed out quickly, they might leave. But if I go out to refill the feeders, I will scare them! What to do? Sometimes I hurry out, head down, as if the last thing on my mind is Evening Grosbeaks. I quickly fill the feeders, then run back to the house. Sometimes I fling handfuls of seed out the window onto the deck. Usually, in trying to welcome them, I wind up scaring them away, and I always panic. I want to see them so badly, want them to stay until the buds swell and the cardinals begin to sing, as they did in the winter of 1967 in Richmond, when I was still my dad's little girl. ■

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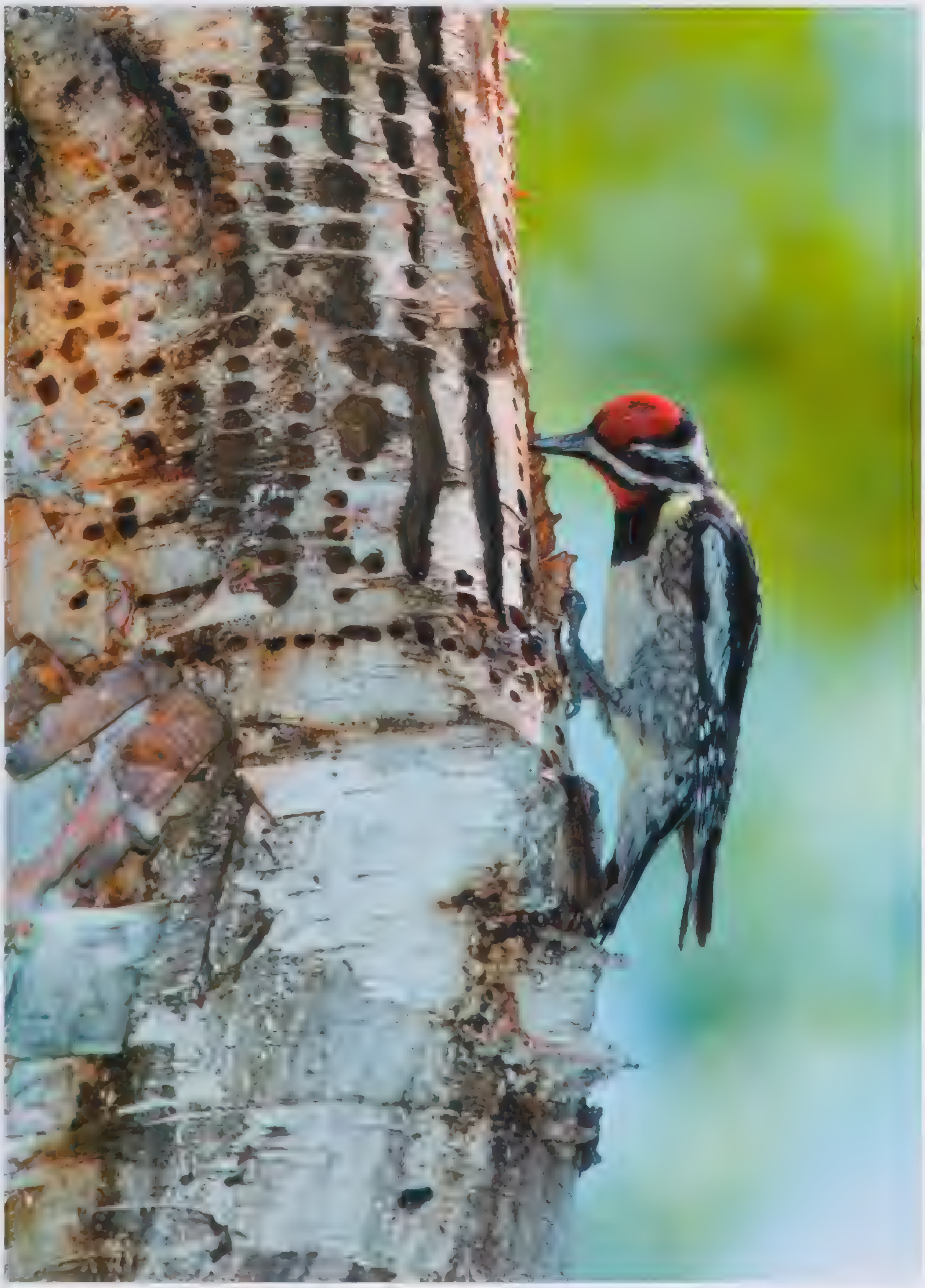
*Julie Zickefoose is a popular author and artist, who lives with her husband and two children in the Appalachian foothills of southern Ohio. She is also a regular commentator for National Public Radio's "All Things Considered." This essay is excerpted from her latest book,* Letters from Eden *(Houghton Mifflin, 2006).*

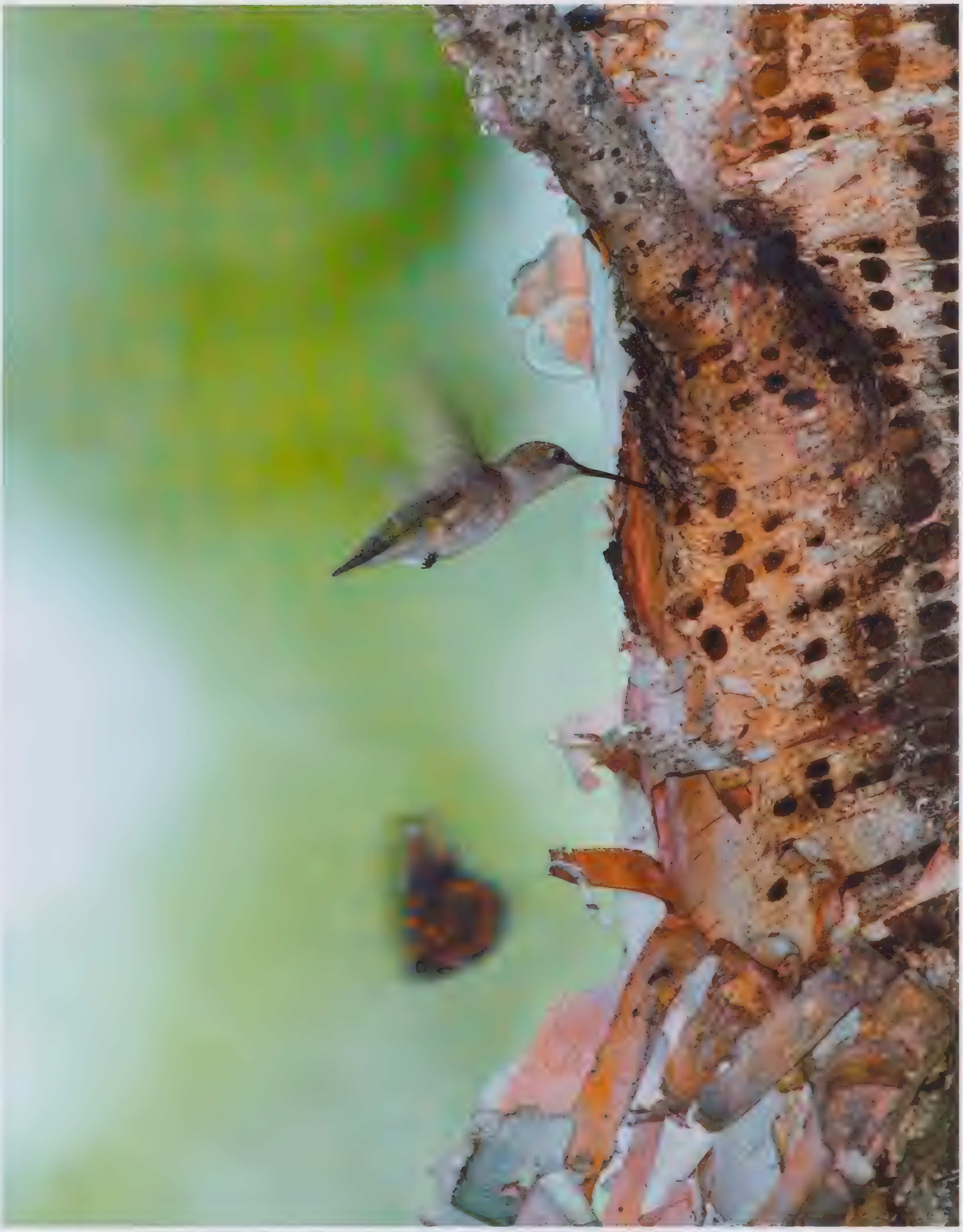
# A Good Neighbor

### BY MARIE READ

## *Sapwells bored by Yellow-bellied Sapsuckers provide an important food source for butterflies and hummingbirds*



*In late winter and early spring, when Yellow-bellied Sapsuckers migrate back to their breeding grounds in many of the northern states and across Canada, they bore sapwells into the trunks of trees (at right), creating their own foraging sites. Rich in amino acids and sucrose, the sap they expose is chemically very similar to the nectar of flowers and provides a vital food source for a host of other animals—such as the red-spotted purple butterfly* (Limenitis arthemis astyanax) *at left, hummingbirds, various insects, and some mammals—at a time of year when most flowers are not yet in bloom. This is a classic commensal relationship, in which individuals of one species benefit from the actions of another species without causing individuals of that species any harm.*



*The Ruby-throated Hummingbird (above) is perhaps one of the greatest beneficiaries of the sapsuckers' largess. Many of these hummingbirds arrive in their northern breeding areas in early spring, when few plants are in bloom. The sapwells can be a lifesaver for them at this time, making it possible for the birds to survive without flower nectar. The hummingbirds also consume some of the tiny insects attracted to the sapwells, thus gaining an additional protein-rich food. Some ornithologists believe that the northern range of the Ruby-throated Hummingbird depends more on the range of the Yellow-bellied Sapsuckers than on the distribution of nectar-producing flowers.*

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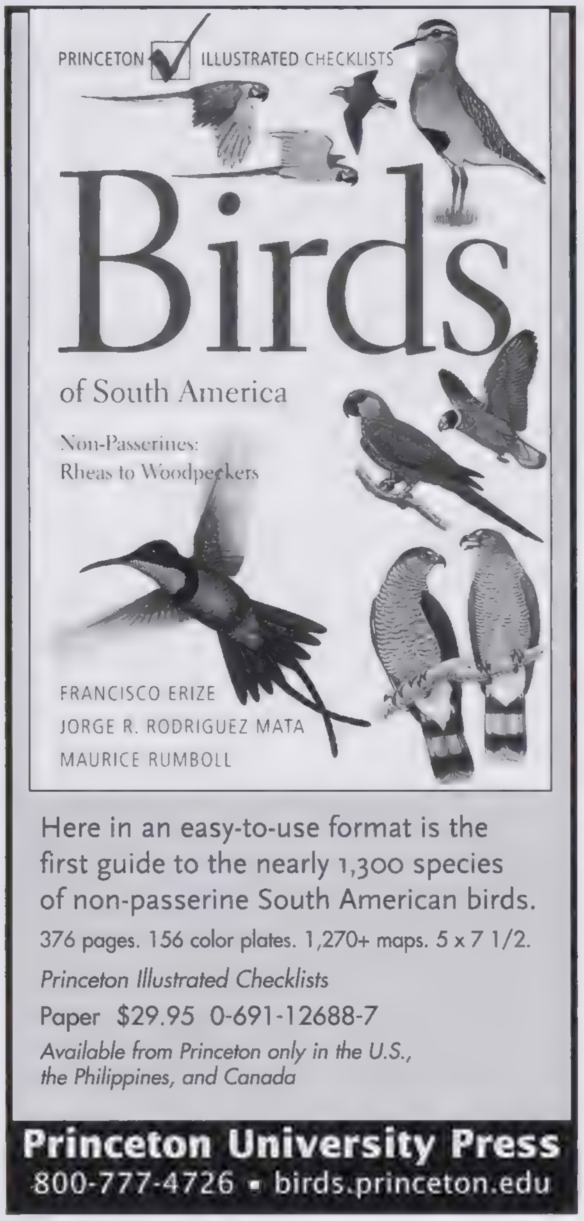

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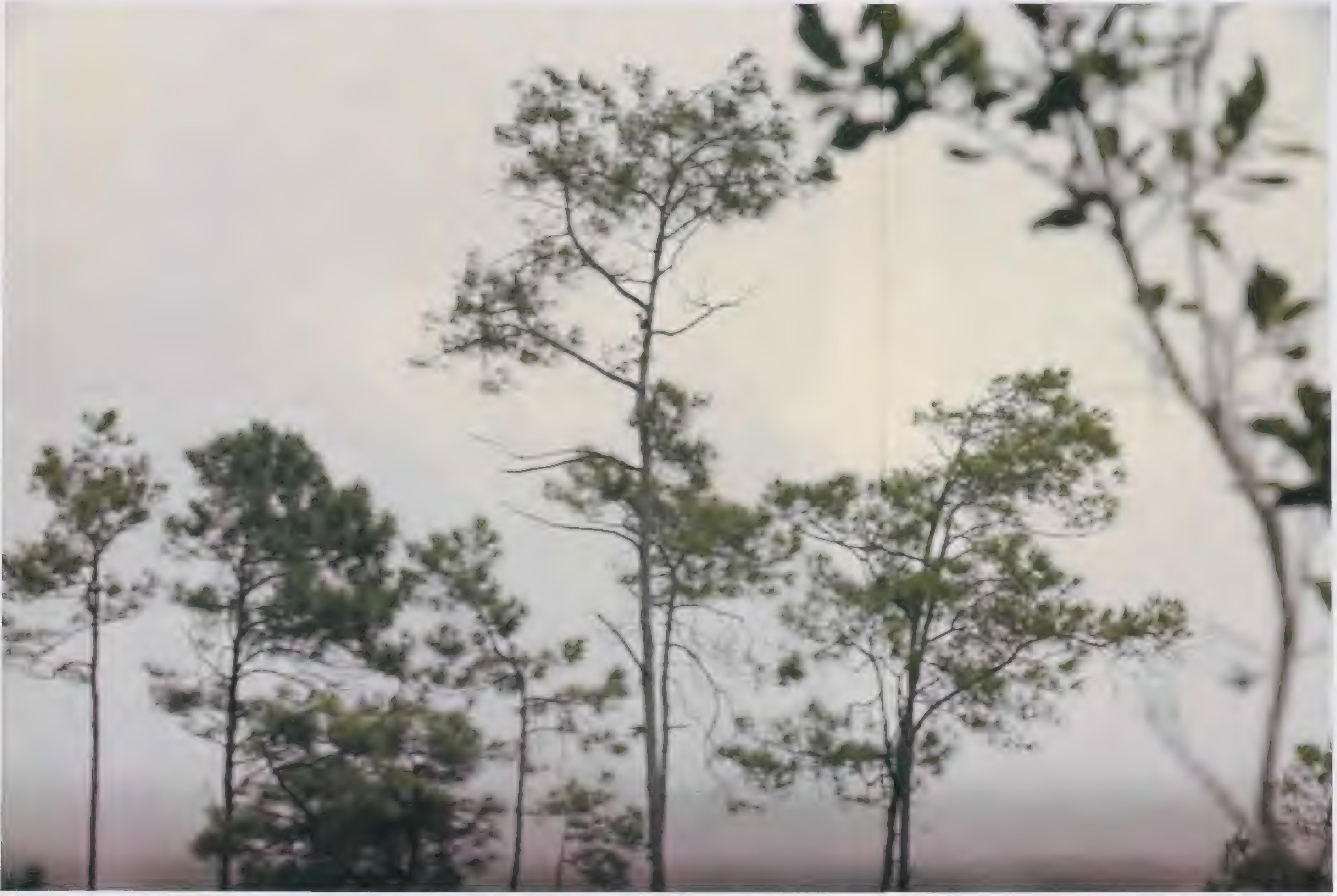
# Newly Found Ivory-bill Images

GEORGE R. LAMB



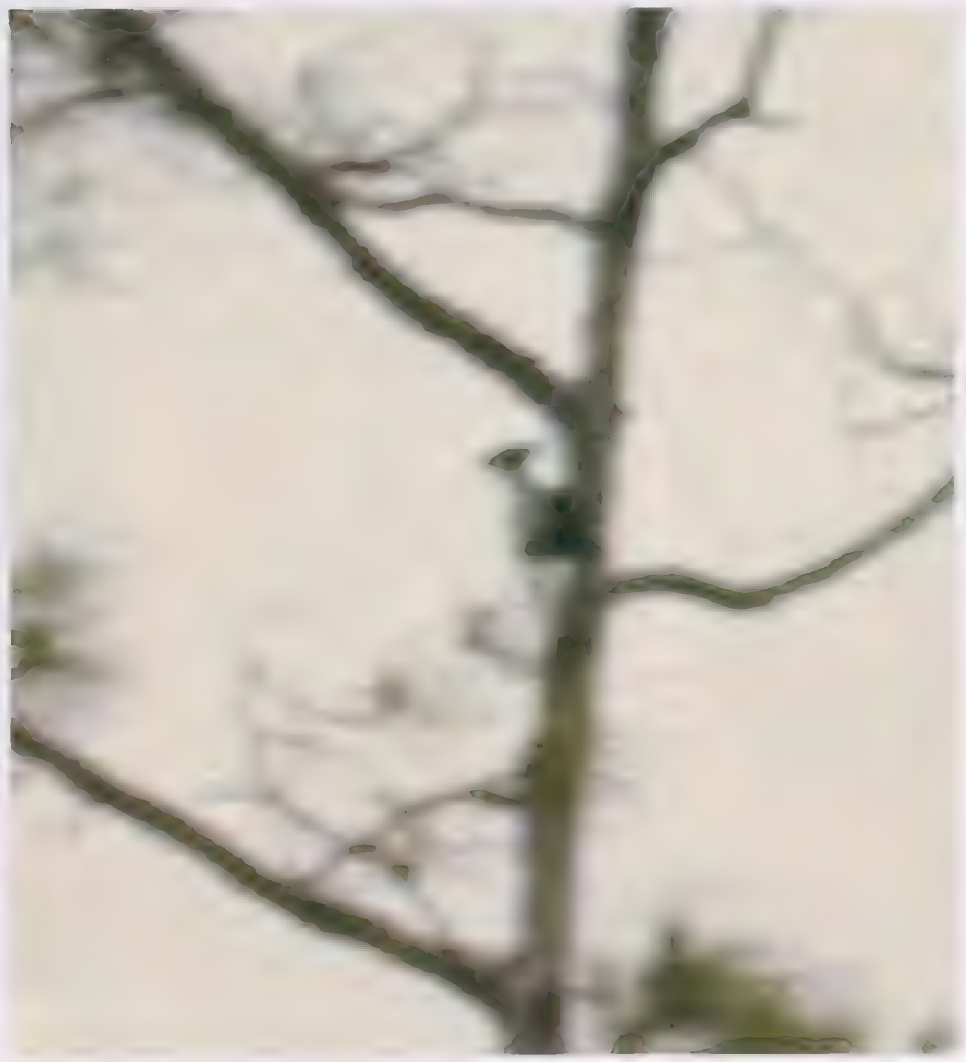
*This previously unpublished photograph of an Ivory-billed Woodpecker (above) was taken by George R. Lamb during a 1956 research expedition to Cuba. At right, a blow-up of the same bird, showing its distinctive markings.*

BY TIM GALLAGHER

## *Three previously unpublished photographs of Cuban Ivory-billed Woodpeckers*

So few photographs of the Ivory-billed Woodpecker exist that it is always exciting when previously unpublished images of the bird show up. We are pleased to present some newly found images here—all of them depicting Cuban Ivory-billed Woodpeckers.

The picture at left was taken by ivory-bill researcher George R. Lamb during his 1956 research expedition to Cuba. A recent college graduate, Lamb and his wife, Nancy, spent several months



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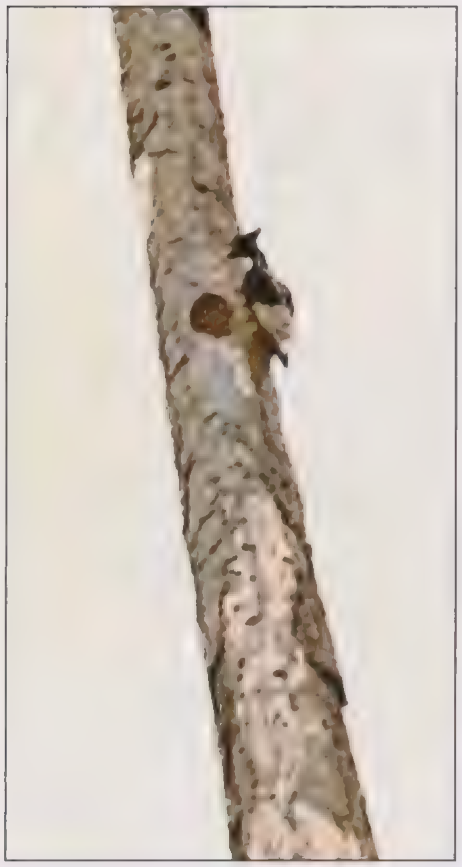


*These pictures of two Ivory-billed Woodpeckers remain a mystery. They were in the personal effects of a sawmill owner who lived near Moa, Cuba, more than half a century ago. The only clue is the year "1941" scrawled in ink on the back of the photographs. The picture of a captive Ivory-billed Woodpecker with a length of twine tied to its leg (right) is particularly depressing. The only previously known pictures of a captive ivory-bill were some James Tanner took in Louisiana's Singer Tract in 1939, showing a young male he banded and returned to its nest.*

searching for and eventually studying a small remnant population of ivory-bills in northeastern Cuba, near La Melba. The International Committee for Bird Preservation had given him a fellowship for studying rare Caribbean bird species, and the ivory-bill was a perfect candidate.

The two spent weeks camping out before finding any ivory-bills. They had a number of sightings, but ultimately did not locate any nests or roost holes.

Although Lamb published a paper about his Cuba research the following year (Lamb, G. R. 1957. The Ivory-billed Woodpecker in Cuba. Pan-American Section, Int. Comm. Bird Preserv., Res. Rep. no. 1), he did not include any photographs of the birds he saw.

I tried in vain to locate George Lamb while I was writing my book, *The Grail Bird.* I was eager to interview him about his experiences in Cuba. Unfortunately, I didn't find him until my book was already published, but I did subsequently have some interesting conversations with George and Nancy Lamb. During one of our talks, he happened to mention that one day during his research expedition to Cuba he had taken some Ektachrome slides of a female ivory-bill foraging on a pine tree. He told me they were not great pictures. His camera did not have a telephoto lens, so the bird's image was fairly small.

Obviously, I was very interested anyway, and he said he would try to find them for me. Several months later, he found six images and sent the best one to me. I was excited to see that, although the bird was tiny in the photograph, it was clearly identifiable as an Ivory-billed Woodpecker, so we are publishing it here—along with a blown-up detail of the bird from the picture.

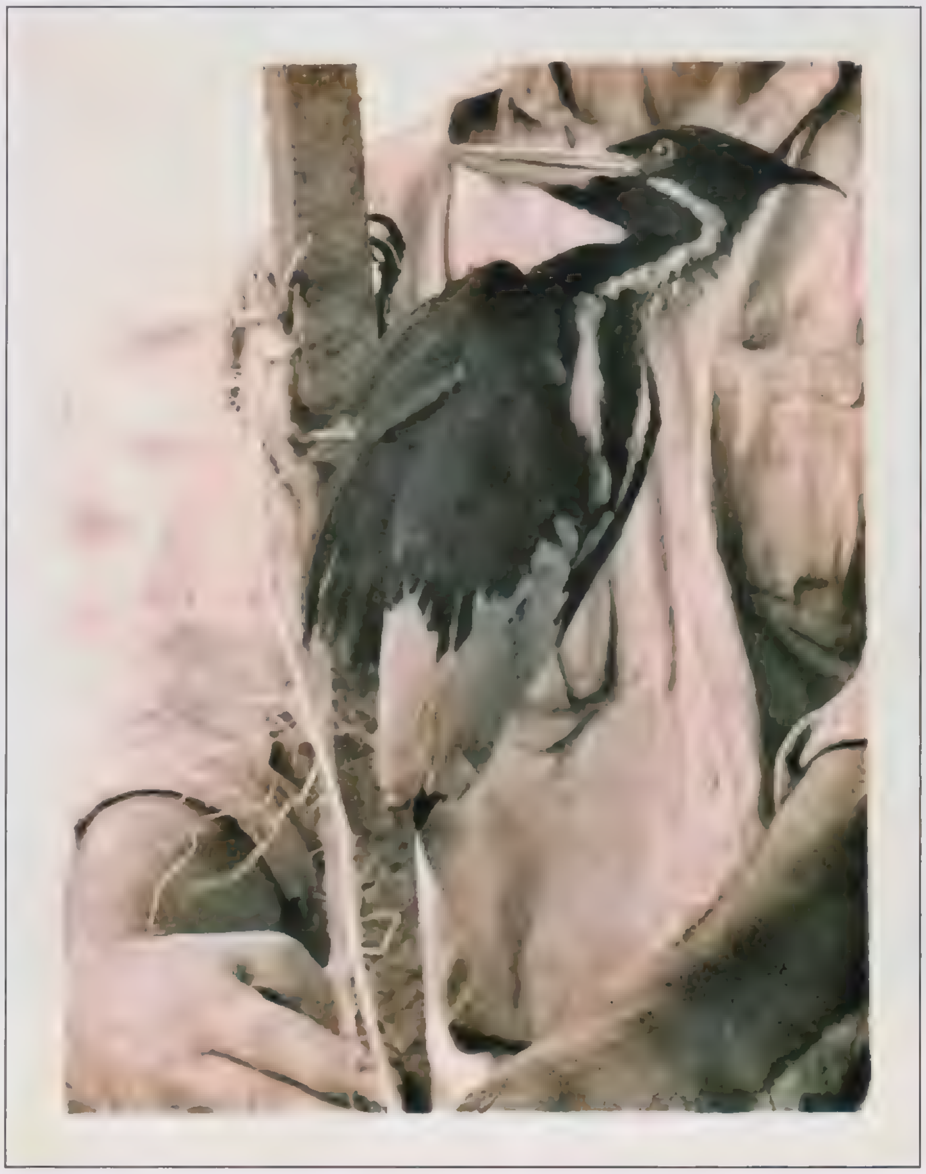
I also recently found out about some other intriguing Ivory-billed Woodpecker pictures. Alan W. Knothe, a birding guide for Nature Tours who lives in the Florida panhandle, told me that Harold Bucher, an elderly Florida man who had lived in Cuba as a child, had some old black-and-white pictures of ivory-bills taken by his father shortly before World War II. Bucher's father and a partner had opened a sawmill near Moa in northeastern Cuba during the late 1930s, when the area was still quite wild and remote, A couple of years ago, Bucher was cleaning up after Hurricane Charley when he discovered the pictures in his father's personal effects.

One of them depicts an ivory-bill perched on the trunk of a dead tree, right beside a large cavity—perhaps the bird is at its nest or roost hole. The other two pictures are disturbing, depicting two different views of a captive Ivory-billed Woodpecker perched on a stake, with a length of twine tied to its leg. We are publishing two of the three pictures here for the first time.

Unfortunately, no data were attached to these photographs, except for the year "1941" scrawled in ink on the back. Bucher is fairly certain that the pictures were taken near Moa, but we have no way of knowing exactly where or what happened to the birds in the photographs, so they may remain a mystery.

We are always eager to receive Ivory-billed Woodpecker reports (or pictures), even old ones like these. They all help to fill in the pieces of the puzzle about the ivory-bill. So few pictures and first-hand observations exist for this species, that everything we get is vital.

To find out the latest information about the ongoing searches for this species, visit our web site <www.birds.cornell.edu/ivory>. And to report a sighting (or to tell us about a photograph) send an email to <ivorybill@cornell.edu>. ■



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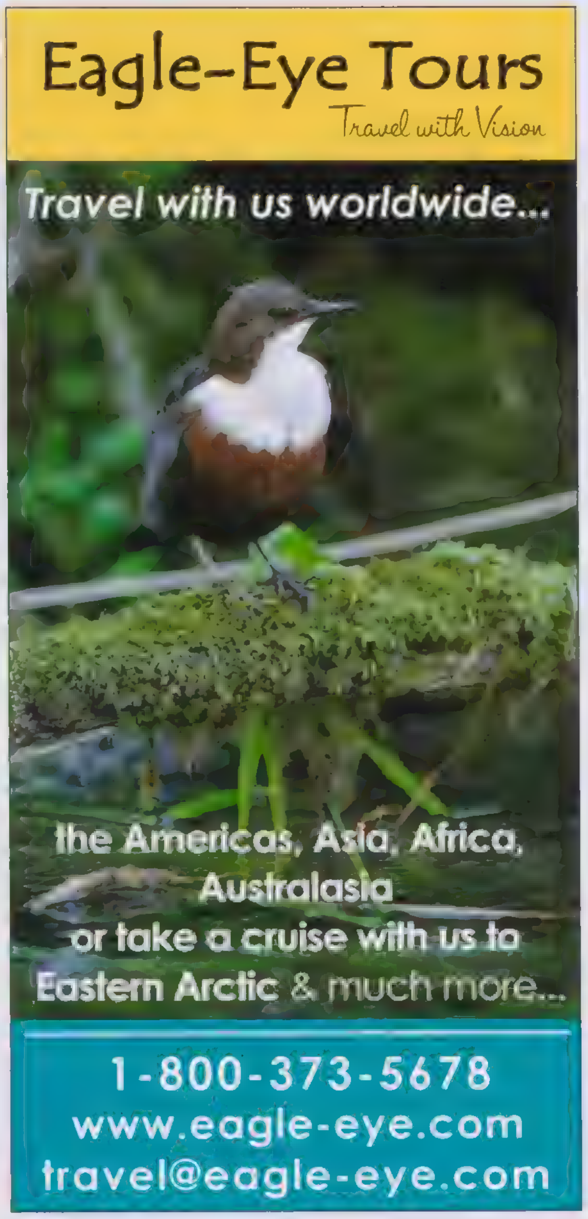

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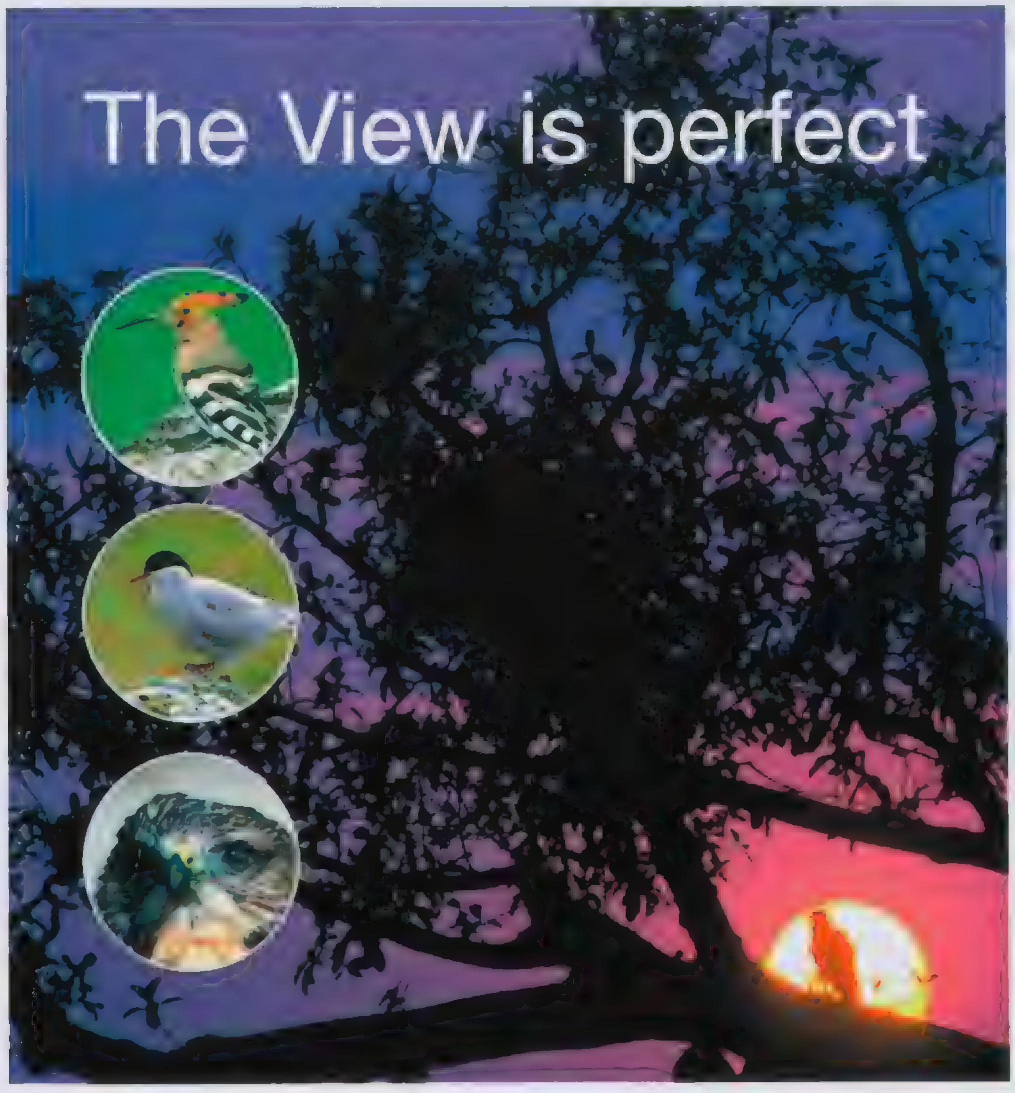

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# SAVING LAND WITH LENSES

*Text and photographs by Gerrit Vyn*

## *Ranch owners in South Texas combine business with conservation in a creative new program*

With the sun slowly illuminating the eastern sky, I settled into my blind in the thorn-laden brush country of South Texas. The queer, inquiring voices of Common Pauraques floated through the air, giving life to the parched country around me. As I readied my camera, I imagined one last time the long list of unique South Texas birds that might appear, attracted to the feeders and water hole just outside. It was now just a matter of time—I could already hear the soft calls of birds approaching—the sounds of wings and feet in the twilight brush.

A pair of Olive Sparrows was first to appear, lurking at the clearing's edge, daring one another to venture forth from the cover of a mesquite. Then a Pyrrhuloxia, a bulbous-beaked desert cousin of the cardinal, flashed across the clearing, landing briefly among the thorns of a colima before disappearing again. Finally, as the first brilliant rays of light wound their way through the tangled brush, a bold Long-billed Thrasher walked into the opening, grabbed a corn kernel, and darted back for cover.

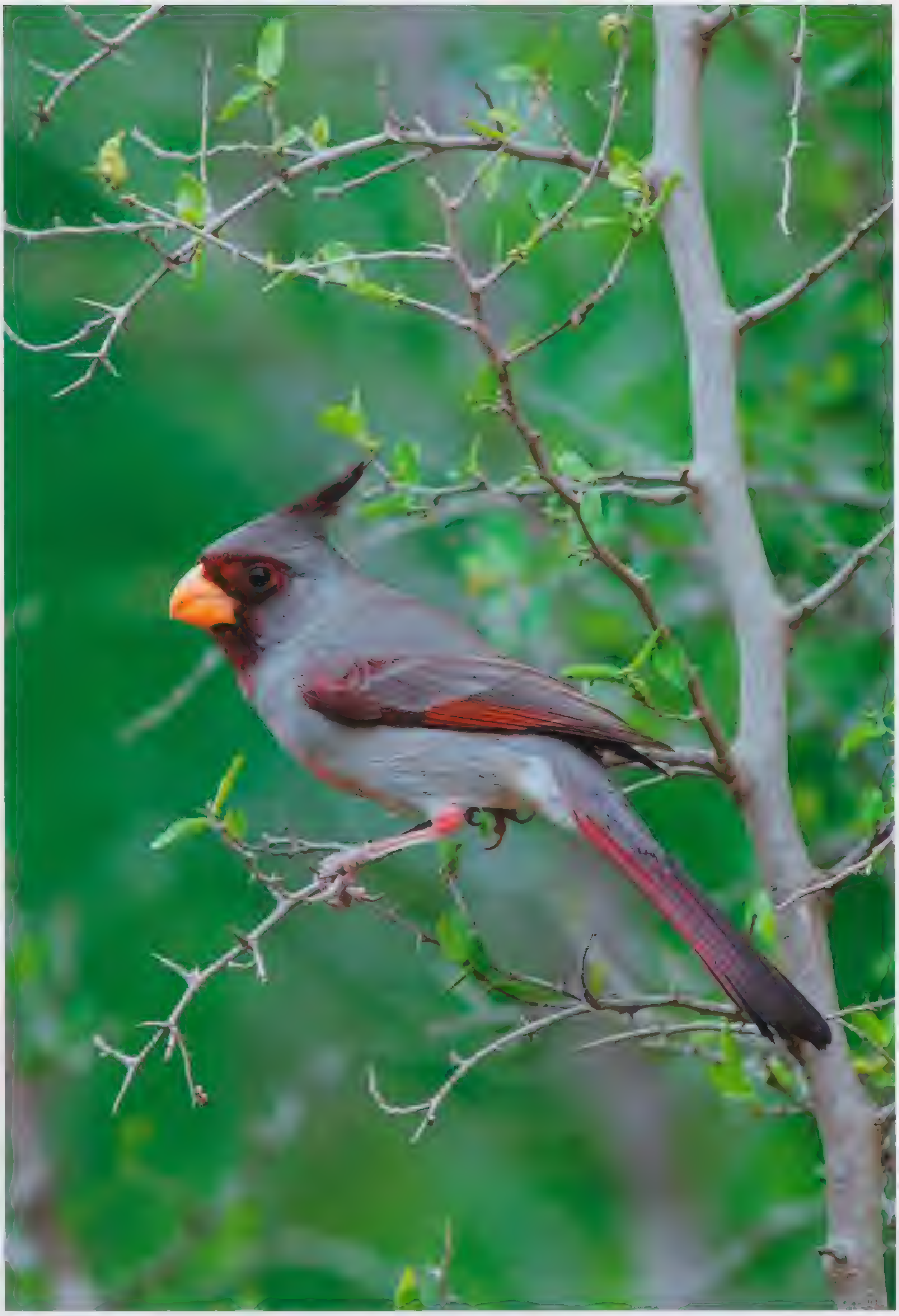
Throughout the rest of the morning I was dazzled by bird after bird: raucous gangs of brilliantly colored Green Jays, bold and aggressive Golden-fronted Woodpeckers, the streaking yellow flash of a Great Kiskadee buzzing the water hole, and the multinoted hollow cooing of frantically pacing White-tipped Doves. I watched and photographed unnoticed for hours as the birds bathed, fed, preened, and interacted. By morning's end, I had become more familiar with many of the birds of South Texas than I could have in a month of birding at the busy parks of the Lower Rio Grande Valley.

This was the kind of experience

*A White-tipped Dove takes advantage of one of the many water holes provided for wildlife on Dos Venadas Ranch.*

I had been hoping for when I made arrangements to visit a half-dozen ranch properties in the valley collectively known as Lens and Land. There, in a region that has long attracted legions of birders, a group of conservation-minded landowners has teamed up to provide a specialized service to wildlife photographers, birders, and anyone seeking a more intimate experience with the unique fauna of the region. In exchange for a daily fee, visitors gain access to private properties managed for wildlife and set up specifically for photography and wildlife observation.

Comfortable blinds are strategically positioned throughout each property. Each is set up for morning or evening observation, and many are submerged into the earth, offering ground-level viewing of waterholes, ponds, and feeders. These ground-level blinds provide a unique perspective where you may come eye to eye with anything from an inquisitive Plain Chachalaca to a western diamondback rattlesnake on the move. Some of the most memorable experiences during my visit occurred in these ground-level blinds. On one still evening I watched a Great Kiskadee skimming a mirrorlike water hole, often stopping to perch and preen on a snag just six feet away. Later, a nine-banded armadillo shuffled from the Texas thicket for one of the longest drinks I've ever seen an animal take. The array of birds attracted to the water holes and the chance of encountering the numerous mammal species creates excitement each time you step into a blind. Whether it is the lazy song of an Audubon's Oriole announcing its arrival to bathe, a bobcat slipping in to take a drink after a long day laying up in the hot Texas brush, or the arrival of the first male Painted Buntings on a spring morning, there is always something new to see and experience.



*The Pyrrhuloxia is common in the Tamaulipas thorn scrub of South Texas. The bird's thick, pale, strongly curved bill helps distinguish it from a female cardinal.*

The primary goal of the ranch owners of Lens and Land is conservation. They want to protect more private lands from development. South Texas is rapidly losing its natural lands to agriculture and suburban sprawl, and these ranches provide important corridors of wildlife habitat and sinks from which wildlife populations can reestablish themselves. The visitor fees help the ranchers support visitors and provide a revenue stream. In ranching, the model has always been to get the most out of your land, and the Lens and Land model lets the ranchers do so in an environmentally friendly fashion. Most importantly, the revenue helps keep the land out of the hands

*A female Golden-fronted Woodpecker pauses while foraging amid the spines of a prickly pear cactus. This bird is fairly common in dry woodlands and mesquite brushlands.*

of developers. Sometimes just generating enough revenue from the land to pay the property tax is all it takes to keep it in the hands of ranch families. Several of the owners hope that putting these easily-managed revenue streams in place now will reduce future economic pressure on their children and prevent the eventual sale and subdivision of their properties. So far the system is proving successful, with support from more visitors every year, and other ranchers across Texas are beginning to take note.

All of the current Lens and Land properties are located within a two-hour drive of McAllen, Texas. They cover a spectrum of habitats, becoming drier as you head west. Accordingly, each ranch has its specialties, and a visit isn't complete without exploring several of them. To the east, I visited El Tecolote ranch for its robust population of Ferruginous Pygmy-Owls and nesting Least Grebes. I wasn't disappointed—ranch guide Bob Simpson and I quickly whistled a pair of owls into view amid mesquite ranchland that looked more like the acacia savannahs of east Africa than typical inland South Texas brush country. Farthest to the west, I visited Dos Venadas ranch, owned by nature photographer Steve Bentsen. Situated among dryland farms, Steve's ranch is an island oasis of native Texas bush country. Dos Venadas boasts nesting Audubon's Orioles, resident habituated Harris's Hawks, and the most reliable diurnal viewing of Eastern Screech-Owls that I know of. Between El Tecolote and Dos Venadas, four other ranches, each with its own character, host unique specialties and are home to most of the typical resident birds for which South Texas is known. I would eagerly visit each of them again.

Perhaps the biggest treat of my visit to South Texas was spending time with the landowners themselves. Their intimate experience with their properties and their knowledge of local natural history were invaluable in providing unique opportunities for photography and wildlife observation. All the landowners took the time to ensure that my visit was productive and comfortable. From a cooler of beer in the shade with Steve Bentsen to G'Anne Weaver's brownies, the hospitality was memorable and genuine. As I toured the Weaver Ranch with grandfatherly Kent Weaver, he beamed with enthusiasm for the project and showed his excitement at sharing his own special piece of the earth with others. For some of the landowners, that's what Lens and Land is really all about—finding

*Intimate encounters with wildlife, such as this Harris's Hawk (above), are regular events when you are hidden in a Lens and Land blind. A Green Jay (below), a south Texas specialty, perches in the open at the Martins' Javelina Ranch.*

that common thread, a passion for conservation and wildlife, that connects some of us.

My final evening shoot was in a low bunker blind on a hot spring evening. The pungent odor of javelina drifted by from time to time, revealing the presence of the robust desert swine just out of view. Birds were visiting the water hole in force, with as many as 18 Northern Mockingbirds quenching their thirst side by side in the still water. Among the other birds were a gang of Green Jays, birds that had become very familiar to me during my weeklong visit. Though I had seen them almost every day, on this evening the light and the surroundings were special. Several of them sat quiet, glowing and green among the wispy mesquite boughs that draped the scene. With all of the action I had been experiencing throughout the week, these usually raucous birds had somehow become too familiar too quickly. It seemed that on this, my last evening, they were intent on letting me know that they were the jewels of South Texas. Luckily, with the whole evening ahead of me and my camera in hand, I was in a good position to pay them their due. ■

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*Gerrit Vyn is a wildlife photographer and an audio engineer at the Cornell Lab of Ornithology's Macaulay Library. Visit his web site: <www.gerritvynphoto.com>. To learn more about Lens and Land or to schedule a visit, go to their web site: <www.lensandland.com>.*

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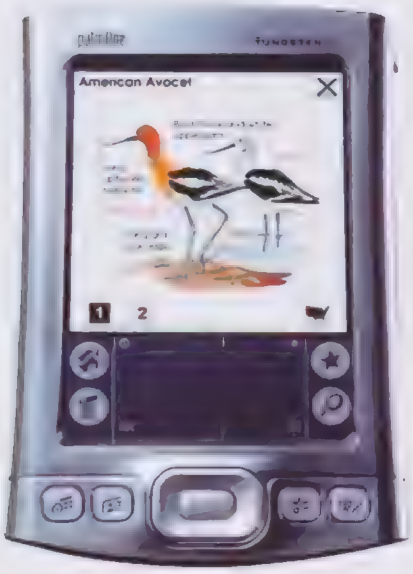

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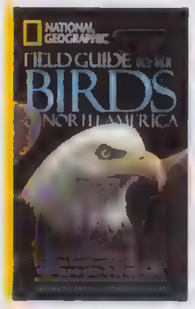

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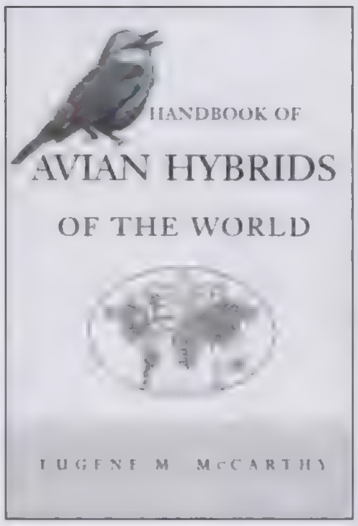

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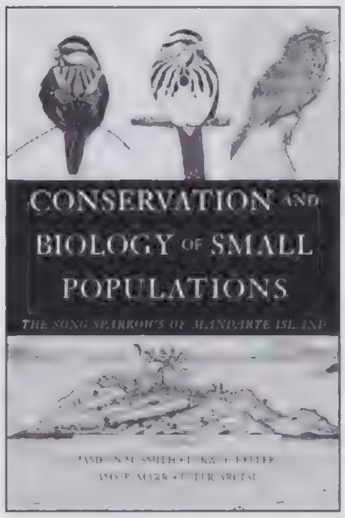
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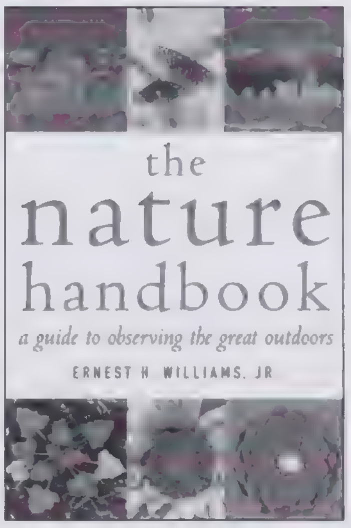

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# BIRD BLANK

*by Pete Dunne*

I have a dilemma and it has to do with a name. No, not my name. After 55 years of answering to Pete Dunne, I find I've gotten comfortable with it. No, my problem is more in the avocational line. I can't figure out whether to call myself a "birder" or a "bird watcher."

Bird watcher (i.e., a person who watches birds) seems to be more broad-based and has, perhaps, a slightly longer shelf life. I'm not certain when it came into common usage. It was not part of the lexicon when Roger Peterson published his seminal field guide in 1934, the introductory line of which reads: "Veterans in the field study of birds."

He could have saved a lot of ink and driven right to the point if he'd just said: "Bird watchers."

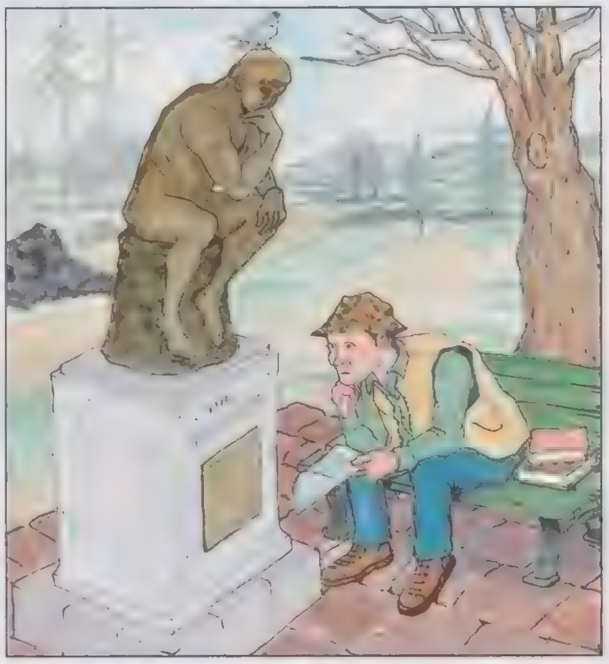
Nine years later, when Joe Hickey published *A Guide to Bird Watching*, he still referred to those who practiced the "hobby" as "bird students," and binocular and bird-feeding ads featured in the few bird-related publications of the time were directed at "bird lovers."

One of the earliest references to the term I have been able to find was in an article in the September-October 1951 issue of *Audubon* magazine. The author was Richard G. Beidleman, the article "Bird-Watching—Hobby of the Half Century." In it is an editorial reference to "bird-watchers" participating in Christmas Bird Counts.

Why do I find this significant? Because I was born during the period when this particular issue was stuffed into mailboxes across America. For all I know, old Doc Stage might have used this issue of *Audubon* to swat my behind in the delivery room.

I've been told that the term "bird-watching" is of British origin. Its introduction to this side of the pond came at the 1949 American Ornithologists' Union meeting in Buffalo, New York, when a British film, "Tawny Pipit," made its U.S. debut. Seems plausible. I've long suspected that hyphens are of British origin, too

Although the source of the label "birder" is better documented, it is not without challenge. The issue of what we (meaning "people of bird-focused intent") were to call ourselves was openly discussed in the pages of *Birding*, the brand-spanking-new magazine of the fledgling American Birding Association. This avid group of chasers and listers had a continental scope and a driving ambition to get as many North American species as possible on their life lists. They preferred the term "birder" to "bird watcher," because it distinguished them from those backyard bird-lover types, and it sounded more turbocharged.



This was in 1970, but there is a however, which follows: the late Harold Axtel once told me that in 1937 he was grappling with this subject as it related to his own personal identity. Harold was enrolled in Cornell University's graduate ornithology program, and he needed some label to distinguish his ornithological focus on birds from the focus he applied when he was just out enjoying birds.

Searching for some precedence among other outdoor activities, he noted that those who engaged in the game of golf were called "golfers." Those who hunted were called "hunters."

Why, he asked himself, could not a person who watched birds be called a birder?

There seemed to be no obstacle to this linguistic leap, so Harold leapt (apparently alone) and began calling himself a birder.

All of this background information doesn't bring me any closer to my own, personal struggle. My approach to bird study probably puts me in the bird watcher camp. Back in 1958, when I first began looking at birds, I took the notion of bird "watching" literally. I thought the idea was to find a bird and then watch it until it disappeared or it got dark or you got hungry and had to go home. Nobody ever told me I was just supposed to identify the thing and move on to the next subject.

But I kind of like the sound of "birding." Sounds authoritative and smart. "Bird watching" kind of plods in your mouth. "Birding" explodes from your lips.

My problem is that as a birder I'm somewhat of a fraud. I really enjoy birds, but I'm an indifferent bookkeeper. Chasing is something I associate with a shot and a beer. Listing is what happens after you leave the taproom and hail a cab.

I think, at best, I'm a grudging lister, which makes me a lightweight birder.

So maybe I'll just fall back on the old tried and true "bird student." It worked for Roger and Joe. Who knows, maybe even "bird lover" will make a comeback someday.

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# LIVING BIRD

SPRING 2007 VOLUME 26 NUMBER 2

## GREETINGS FROM SAPSUCKER WOODS

I have always loved a good mystery—especially one that involves ornithology—and an excellent example came up several months ago. A New York bird-bander by the name of David Junkin caught a small songbird in his mist net and was completely stumped. It didn't look like any bird he had ever seen.

What's more, he and his wife, Sandy, could not find anything that matched the bird in their field guides and reference books. They finally had to release the bird—after, of course, photographing it from every possible angle and recording its weight, measurements, and other details.

From there, the plot thickened. Pictures of the mystery bird were posted on a number of birding web sites, creating a flurry of interest—and numerous wild speculations about the bird's identity—but still no definitive answer.

But then the Junkins recaptured the bird and plucked two tail feathers before releasing it again. Our DNA lab did the rest, determining the species of both of the bird's parents.

End of the mystery, right? Well, yes—but Irby Lovette, director of the Lab's Fuller Evolutionary Biology program, thought it would be fun to give *Living Bird* readers a chance to figure out the bird's identity themselves. He and Project FeederWatch leader David Bonter wrote an in-depth article about the bird (see "Name that Warbler" on page 32). The article has an illustration and two photographs of the bird, plus a link to our web site, which has more pictures to help you figure out its parentage.

The correct answer can be found on the Lab of Ornithology web site and will also be published in the Summer 2007 issue of *Living Bird.* I hope you enjoy attempting to solve this mystery.

*Tim Gallagher*
*Editor-in-Chief*

**Cover:** A Buff-bellied Hummingbird relaxes on a tiny twig near Raymondville, Texas. This Mexican species is fairly common in the Rio Grande Valley. Photograph by Cliff Beittel.

**Right:** The Broad-billed Tody is an endemic species on the island of Hispaniola. Read about the threatened birds and habitats of Haiti starting on page 14. Photograph by Eladio M. Fernandez.

**Back cover:** A White-crowned Sparrow perches in a flowering tree in South Texas. Photograph by Larry Ditto/KAC Productions.

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Six years after his initial article, McGowan takes another look at this hot topic in birding.

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Can you figure out the parentage of this previously undocumented mystery bird?

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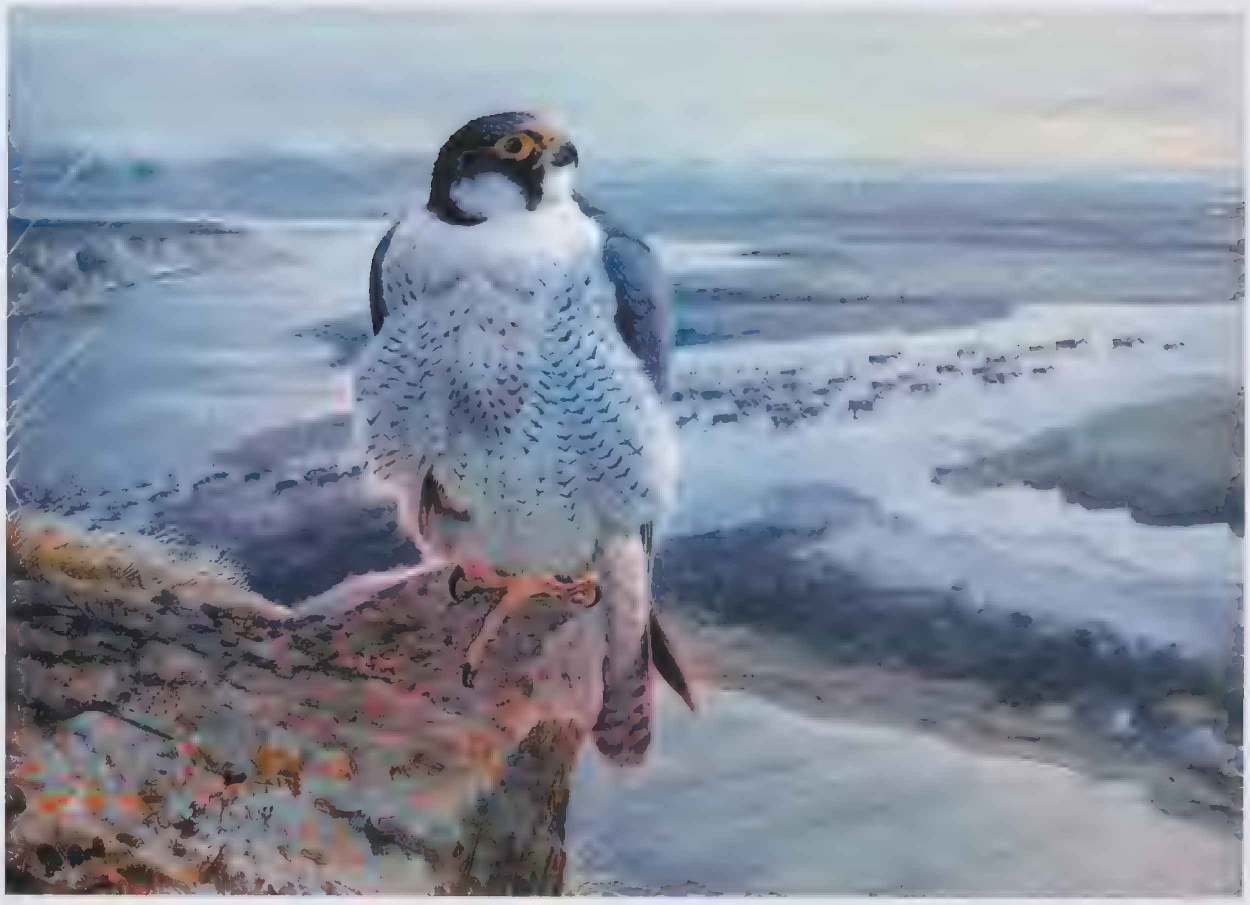
# Letters


VADIM GORBATOV

## THE ARTISTRY OF VADIM GORBATOV

Sitting here at my desk in my second-story studio and looking down on the bird feeders, I am reminded of your "Greetings from Sapsucker Woods." I look forward to each *Living Bird* and read the greetings first.

The stunning portfolio of Vadim Gorbatov's birds ("The Birds of Vadim Gorbatov," Autumn 2006) took my breath away: the powerful stillness full of kinetic energy of the Dersu character with his "Berkut" and the explosive energy of the goshawk scattering the Black Grouse. But the grandeur of the Peregrine Falcon, the caribou, and the tundra evokes no less than mute awe and admiration for Gorbatov.

Here, over my desk, I am looking at Robert Verity Clem's Peregrine at Taughannock. Considering the bird painter's zeitgeist of the 1950s, not half bad for a bird sitting on a limb: you can feel the energy and motion through the eyes—the eyes of a predator. I am struck by the similarities between the two paintings, although they were painted at least 40 years apart. Take the backgrounds, for example: the caribou streaming across the frozen tundra compared with the water falling down the wall of rock, and both falcons perched on the edge over the land way below them. Gorbatov's peregrine is magnificent.

Thank you for another wonderful issue of *Living Bird.*

*Forrest Bogan*
*Neavitt, Maryland*

I thoroughly enjoyed Stephen Bodio's excellent article about Russian wildlife artist Vadim Gorbatov. The portfolio of his work you published was excellent. Although I was familar with Gorbatov, I had not seen some of these paintings and was truly impressed. And I found it quite fascinating to read about his early life and about how he first began drawing and painting birds.

*Ellen Johnson*
*New York, New York*

We welcome letters from readers. Write to The Editors, *Living Bird,* 159 Sapsucker Woods Road, Ithaca, New York 14850, or send email to <livingbird@cornell.edu>.

## *In Memoriam*

# *Harold F. Mayfield*

*(1911–2007)*

The ornithological world lost a hero when Harold F. Mayfield died on January 27, 2007, at the age of 95. Few people have had as much influence on the field of bird study.

Mayfield was perhaps best known for his work on the Kirtland's Warbler, an endangered species that until 1996 nested only in a small section of northern Lower Michigan. He became interested in the bird in the 1950s, and in 1960 published a monograph called *The Kirtland's Warbler* that clearly established the bird's reliance on forest fires, specifically the small jack pines that grow up in a fire's wake, to provide nesting habitat. The monograph also documented the devastating effects of the parasitic Brown-headed Cowbird on the Kirtland's Warbler. In 1961 the American Ornithologists' Union called the book "the most important recent work on the birds in the Western Hemisphere," and awarded Mayfield its top honor, the Brewster Memorial Award. More importantly, in 1974 Mayfield helped to develop a Kirtland's Warbler recovery plan, which included aggressive trapping of cowbirds in the Kirtland's range. As a result the species recovered from 167 to more than 1,400 male birds, and expanded its nesting range.

Mayfield was also well known for his research on the Red Phalarope, a seabird that nests on the Arctic shore but spends the rest of its life at sea. In all, he published more than 200 scholarly papers.

Furthermore, Mayfield is the only person who ever served as president of all three of North America's oldest professional ornithological societies: the American Ornithologists' Union, the Wilson Ornithological Society, and the Cooper Ornithological Society.

*Harold Mayfield (above) records his observations at Bathurst Island, Canada.*

And yet, incredibly, Mayfield was never employed as an ornithologist. His full-time career was in personnel management, and he spent more than 30 years as an executive at Owens-Illinois Inc.

During his career Mayfield invented "The Mayfield Method," a more efficient way of measuring the nesting success of birds, which is still used by researchers around the world. (Mayfield had a master's degree in mathematics and said that the development of this method came about as a result of his work calculating workplace safety records at Owens-Illinois Inc.)

Speaking of his ornithological work, Mayfield said, "I've been an example of what an amateur can do," after learning he was chosen to receive the Robert Ridgway Award from the American Birding Association for a lifetime of publications in field ornithology.

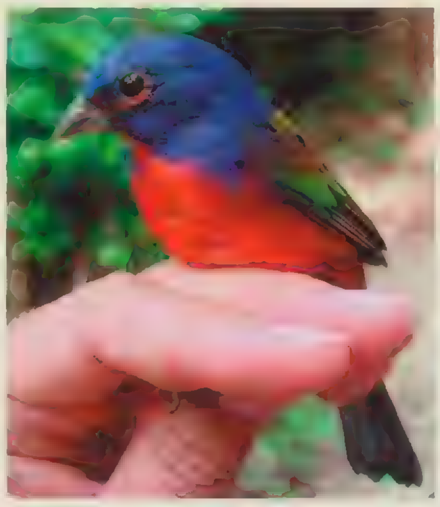
Mayfield also helped to pave the way for the development of the citizen-science program at the Cornell Lab of Ornithology. In 1977, as part of an American Ornithologists' Union/National Science Foundation Workshop on a National Plan for Ornithology, Mayfield coauthored, along with Frank Gill and Kenneth Parkes, a report titled "The Role of the Amateur and the Society in Ornithology." This report—which recognized the considerable historical contributions that amateurs had made to ornithology and offered recommendations for professional ornithological organizations to enhance the ability of amateurs to contribute to ornithology—was a guiding document for the Lab staff who started Project FeederWatch and other citizen-science projects in the late 1980s and early 1990s.

Mayfield started bird watching in his late twenties as a means of relaxing after he suffered a stroke, perhaps triggered by early forays into athletics. In 1990, more than 50 years later, the Lab awarded him its Arthur A. Allen Award, given "to a professional or amateur for broad and outstanding contributions to ornithology." No one ever deserved the award more.

— *Richard E. Bonney, Jr.*

## FIRST RECORD

During a recent visit to Punta Cana in the Dominican Republic, André Dhondt (director of the Lab of Ornithology's Bird Population Studies program) and his wife Keila trapped the first Painted Bunting ever recorded on the island of Hispaniola. The adult male (at right) was caught in a mist net on January 3, 2007, and released after being weighed, measured, and photographed.



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*In the Field*

# KILHAM THERAPY

*by Jack Connor*

## *Behavior-watching can cure the blues*

Probably every birder with a few years' experience has gone through a slump or two—when the only birds you can find in the neighborhood seem like the same old same old. Those doves and sparrows scrabbling in the garden have become too familiar, as have the crows cawing from the yard next door and that woodpecker hitching up the tree above your head. You've seen it all before. Worse, you are sure you can predict which birds you will find tomorrow, the week ahead, and the week after that—and none of them seems exciting.

The next time such malaise strikes you—and before you pack away your binoculars to take up quilting or crossword puzzles—consider giving yourself a good dose of Lawrence Kilham for its resuscitating effect.

Kilham (1910–2000) managed a dual career of accomplishments that few have matched. By profession, he was a virologist and epidemiologist who taught at Dartmouth Medical School for many years, published more than 100 articles on viruses and infectious diseases, and won a Lifetime Career Award from the National Institutes of Health for his medical research. As an amateur ornithologist, he specialized in the sharp-eyed, diligent observation of common birds, and he published four books about birding and natural history and more than 90 articles in a wide variety of journals, including *The Auk*, *The Condor*, and *The Wilson Bulletin*. His investigations of woodpeckers have been particularly valuable to professional ornithologists and students of animal behavior. "Indeed," wrote Jerome Jackson in a memorial essay in *The Auk* (October 2001), "it is difficult to find a major study on the behavioral ecology of woodpeckers that was not influenced by Kilham's work."

Kilham's book *On Watching Birds* won the John Burroughs Medal for Nature Writing in 1988 and remains in print. Open it to any chapter and you will find a distinctive blend of hard-won observational know-how and curmudgeonly commentary. Kilham could be tough on professional ornithologists ("I find almost nothing that I can use in the chart- and table-studded articles on behavior in the leading journals of today") and on amateurs ("There is probably no greater barrier for most people to watching birds...than the idea of being alone.... Most birders cannot understand this truth. Go to some 'hot spot,' go to where others go, seems to be their credo.") But don't let his rough edge put you off. Kilham was a brilliant observer, and his methods can make you a better birder. Follow his approach and even the most ordinary and well-studied birds—including American Crow, Great Blue Heron, White-breasted Nuthatch, Downy Woodpecker, and other favorites of his—will reward you with insights.

"I have never been deterred from studying a bird because others have written a few papers about it," he claimed. "There is just too much to learn about even our commonest birds."

His most frequent technique was to follow birds until he found a courtship or nesting site and then to return again and again for long sessions of carefully observing the same individuals. You only need four tools to study bird behavior, he argued: binoculars, pen, paper, and a chair. "The trouble with most men, said Pascal, is that they cannot sit still in a room alone. I would say that the trouble with many would-be behavior watchers is...they can't sit still out of doors. [A chair] helps make one content to stay in one place and watch, especially during periods, which always occur, when nothing much happens."

His best book may be *Woodpeckers of Eastern North America*, originally published in 1983 and reprinted by Dover in 1992, which is still available at various online outlets. Here Kilham compiled and synthesized 51 of his articles and his quarter-century of careful observations of eight species of woodpeckers: Downy, Hairy, Black-backed, Pileated, Red-headed, Red-bellied, Yellow-bellied Sapsucker, and Northern Flicker.

One Kilham-like exercise you might start with is to spend a week or two listing the foraging methods used by the most common woodpecker species in your neighborhood. Beginning birders are often surprised how hard it is to find a woodpecker hammering away at a tree trunk in Woody-Woodpecker-style, sending chips flying in all directions. More experienced birders know that hammering is relatively uncommon and that most woodpeckers use other techniques more frequently, but how many different foraging methods can you list?

Kilham distinguished five foraging methods used regularly by Downy and Hairy woodpeckers (and at least occasionally by most other woodpeckers). From least Woody-like to most, they include *Peering and Poking:* climbing up a tree, searching for hidden prey the way Brown Creepers do—without removing any bark; *Scaling:* uncovering prey by knocking off small pieces of bark; *Pecking:* brief tapping on the tree to remove bark (a step up from scaling); *Percussion:* "rapid blows here and there...to locate prey presumably by causing it to move"; *Excavation:* up to 15 minutes or more of extended exertion at a single spot, “where the woodpecker hews out splinters, often seizing them by its bill to shake them loose or toss them aside.”

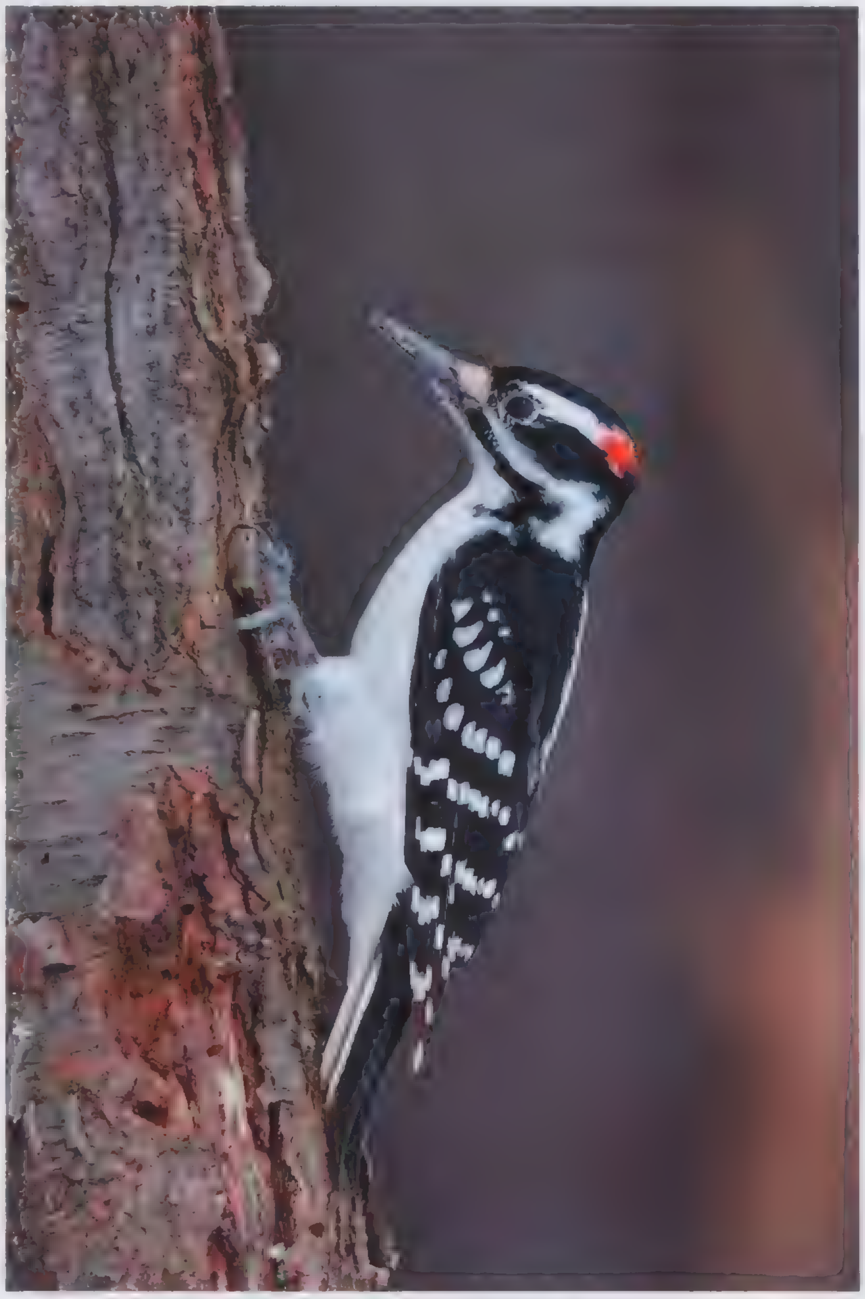
The next time that same old woodpecker stops in your backyard, why not give the Kilham method a try? Which technique is most common? Does the bird’s technique change on different trees—or as it climbs off the trunk and up onto smaller branches?

For an extra challenge, you might adopt Kilham’s method of tracking individual birds by their plumage differences. He sketched the head patterns of the woodpeckers he watched in his notebook and used the drawings to track solo birds and pairs for weeks. For Hairy Woodpeckers, a favorite species of his, Kilham noted, “I have never found two with the same pattern of black and white, or red in the case of males. Nature has thus provided... natural markers, ones that aid in studying behavior.”

One puzzle you can study in the field whenever you come upon a Hairy Woodpecker or any other sexually dimorphic woodpecker: Do males and females feed differently? Do mated pairs use different foraging methods and have preferences for different trees or different parts of trees to minimize competition with each other? Kilham and many other observers have concluded that they do.

In a 1965 article published in *The Wilson Bulletin* (“Differences in feeding behavior of male and female Hairy Woodpeckers”), Kilham reported that the Hairy Woodpeckers he studied in Maryland and New Hampshire had clearly different tendencies. Male hairies excavated more often than females. Females used other methods—peering and poking, scaling, and pecking—more often. Females had a strong preference for elms (then dying of Dutch elm disease); males rarely joined them there.

To explain these differences, Kilham noted male woodpeckers driving other males away from feeding sites and suggested that similar competition between two members of the same pair could be disadvantageous “especially if one considers that at least three months of the breeding period are largely involved in building up social pairs which will enable [the male and female] to meet the hazards of raising young in effective cooperation. Friction arising from repeated competition would tend to weaken the pair bond.”



*The next time that same old Hairy Woodpecker stops in your backyard, why not give the Kilham method a try?*

GERRIT VYN

The two sexes might also divvy up the local feeding spots by searching for different kinds of prey: “the fact that the male was adept at securing one kind of food and the female another might enable them to work the more limited resources of the immediate environment to best advantage in...feeding themselves and young.”

Niche partitioning by the sexes touches on several interconnected and complex themes of ecology and parental roles in birds. (A similar argument has been used to explain sexual size dimorphism in hawks, especially the accipiters.) But other researchers are not convinced—or at least not certain that the story is a simple one.

The most current understanding on how (or if) Hairy Woodpeckers partition their resources can be found in the birds’ species account in *The Birds of North America* (2002) by Jerome Jackson, Henri Ouellet, and Bette J. S. Jackson. Under the discussion of “Priorities for Future Research,” the authors note, “One of the more intriguing revelations from the extensive literature on the Hairy Woodpecker is the diversity of data available on sex-related differences in foraging. Significant differences between males and females have been reported, but often the differences are exactly opposite of other studies. Carefully designed and coordinated studies need to be carried out in diverse regions and habitats and at different seasons.”

Kilham suspected this complexity as long ago as his 1965 article, when he concluded, “Such descriptions as I have given [of different feeding behaviors by males and females] ...may not fit all localities.” [The Hairy Woodpecker] “may not be uniform in habits throughout its continental range but consist of local populations...adapted to particular climates, types of woodland, insect populations, and sets of avian and other competitors making up their immediate environments.”

I can’t help thinking that if Kilham had seen the recent update—that the jury is still out on the question of niche partitioning in Hairy Woodpeckers (and many other species) and that their behaviors may differ by region—he would have understood this as one more good reason to gather up his binoculars and chair and walk out into the woods again: “There is [still] just too much to learn about even our commonest birds.” ■

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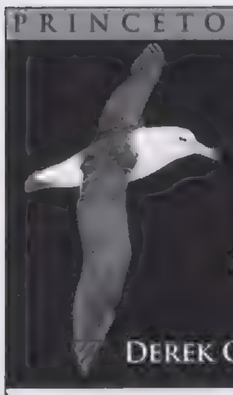

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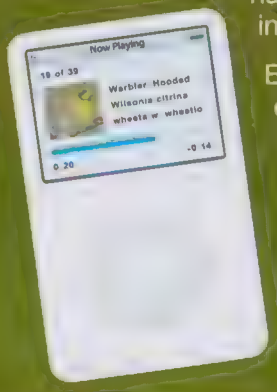

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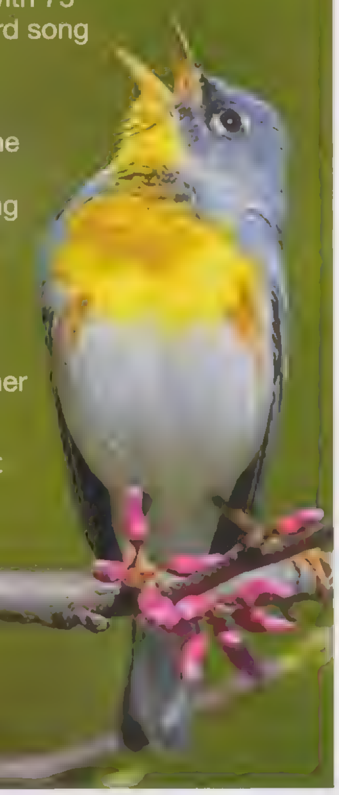

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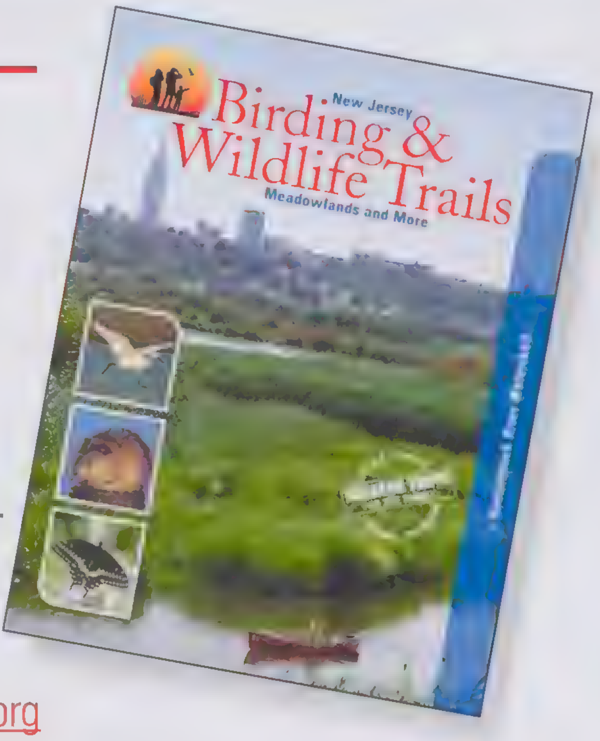

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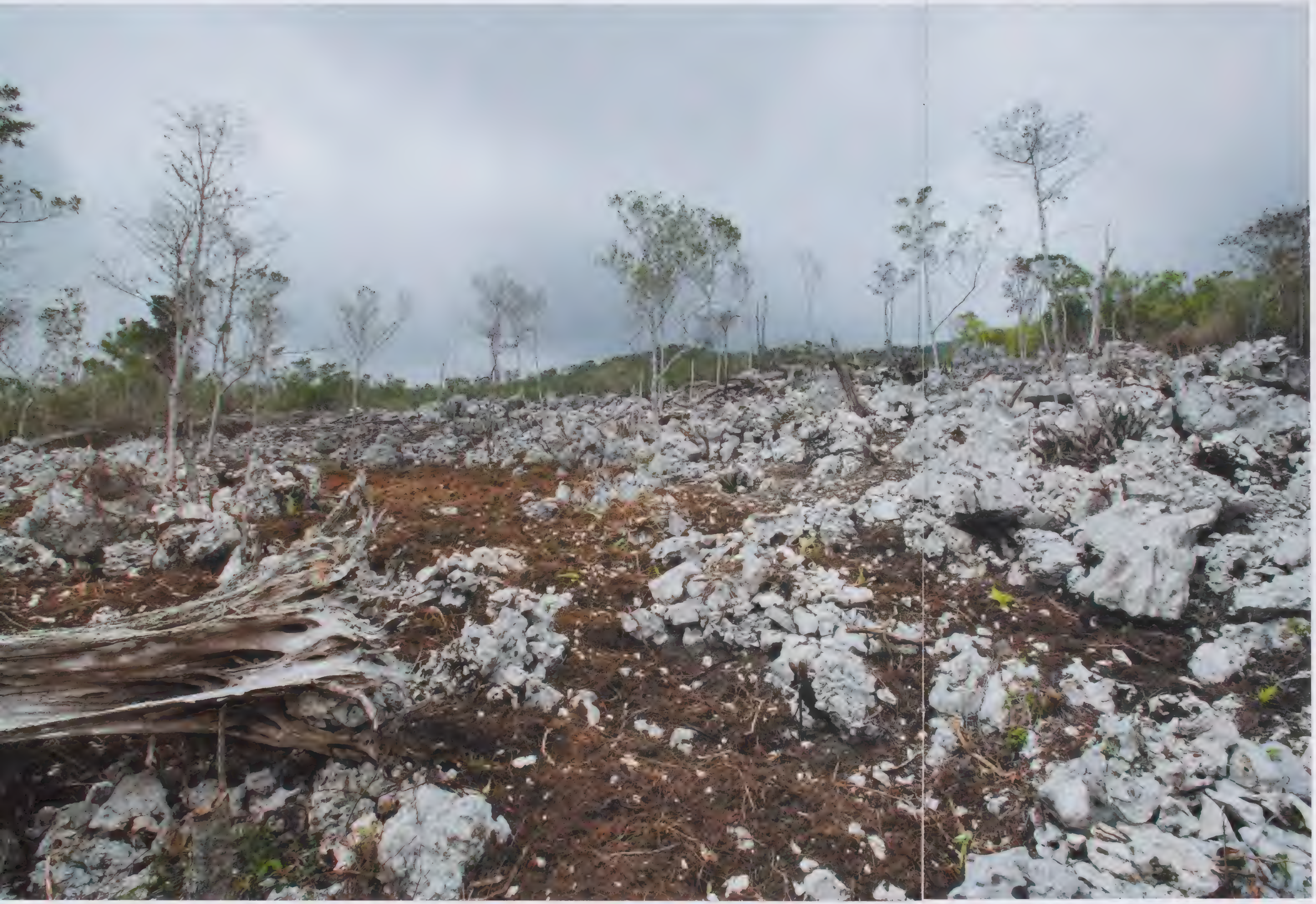
# IN SEARCH *of* HAITI'S BIRDS



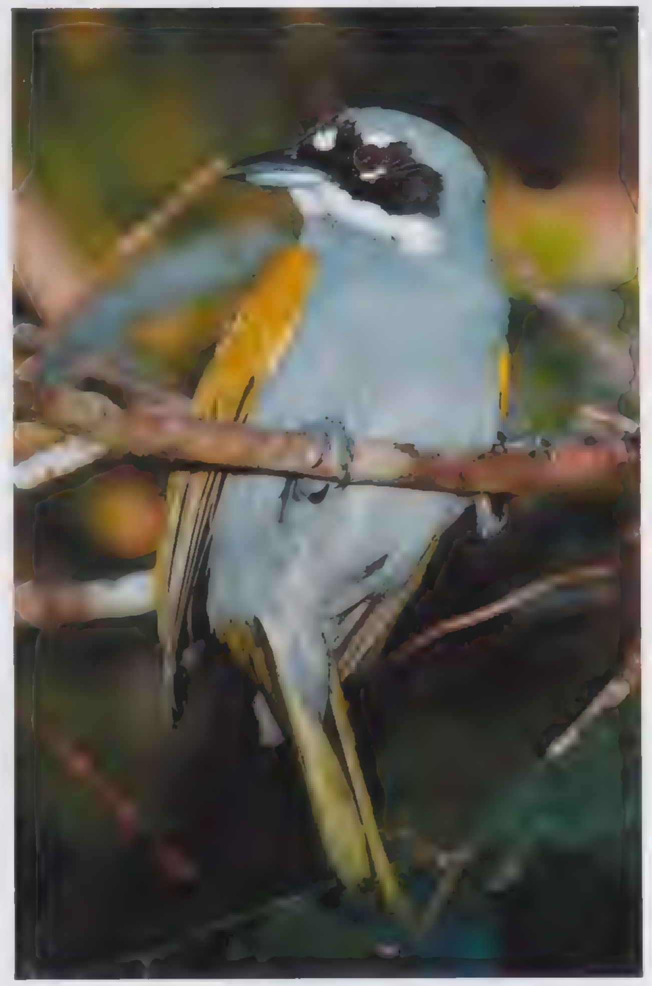
*Deforestation continues unchecked within and around the poorly defined borders of the Macaya Biosphere Reserve (above). The Reserve is a refuge for the Gray-crowned Palm-Tanager (right), a bird found nowhere else in the world.*

BY JASON TOWNSEND

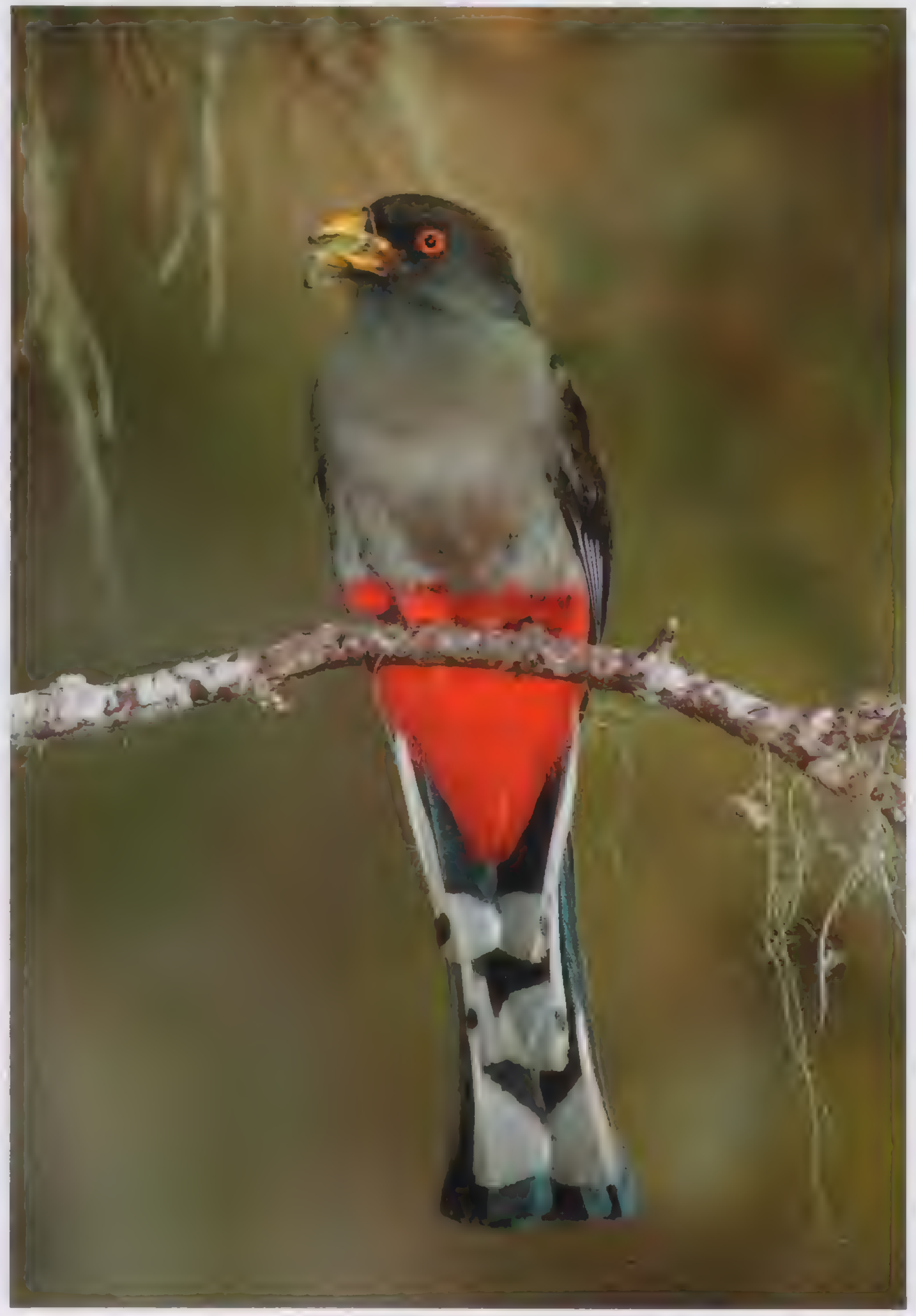
PHOTOGRAPHS BY ELADIO M. FERNANDEZ

## *The daunting plight of birds in the Western Hemisphere's most environmentally ravaged nation*

"Ah, my poor little birds! My poor country!" says Haitian conservationist Phillipe Bayard. I am standing with him in the sprawling city of Les Cayes, ironically the birthplace of John James Audubon. We turn away from the garbage-filled streets and look up toward the layered, cloud-soaked peaks of the Massif de la Hotte, and together we imagine some lasting, protective spell cast over these mountains by Audubon's natal print. Here, in the southwestern tip of the most environmentally degraded nation in the Western Hemisphere, we look up at the Macaya Biosphere Reserve—the largest block of forest left in Haiti and one of the last refuges for its resident and migratory birds.



As we prepare to make the bone-jarring ascent up the one and only road into the Reserve, Bayard continues with his thoughts. "In a country like this," he says, "if you



*Chris Rimmer (above) of the Vermont Institute of Natural Science has spearheaded efforts to conserve Haiti's remnant forests. The endemic Hispaniolan Trogon (right) clings to a precarious existence within these quickly disappearing patches.*

have the means, you must do something. I have chosen to save the birds."

In 2004, Bayard formed the first Haitian nongovernmental organization to focus on avian conservation—the Société Audubon Haiti (SAH). Soon after, he entered into a research partnership with the Vermont Institute of Natural Science (VINS) and the Sociedad Ornitológica de la Hispaniola (SOH), based in the neighboring Dominican Republic. Together, these institutions have embarked on three research expeditions in as many years to find out what remains to be saved of Haiti's avifauna.

Led by Chris Rimmer, head of the Conservation Biology Department at VINS, these expeditions have shown that although many of Haiti's at least 250 species of birds—30 of which are endemic to the island of Hispaniola—persist, they do so in small pockets and often in low numbers. Only 1.5 percent of Haiti's original forest habitat remains, but day by day even that tiny remnant is being steadily slashed and burned by subsistence farmers, who make up the majority of Haiti's population.

Only two substantially forested national parks exist in Haiti—the Macaya Biosphere Reserve and La Visite National Park. Rimmer and Bayard are focusing their efforts within their poorly defined boundaries, where many of Haiti's most endangered birds are making their last stands.

"It's amazing what can pass for a road here!" We kept shouting comments like this to each other at intervals over the revving of the engine and the gunshot cracking of loose rocks on the chassis. Undaunted, those who volunteered to be drivers for the journey from Les Cayes up into the highlands of the Macaya Biosphere Reserve—one each from SAH and SOH—did so like true islanders. Our vehicles lurched and careened over jagged projections of limestone and eroded caverns with equal disregard for the rubber and steel of the trucks and the bones being jarred within.

In February 2004 and again in February 2006, Rimmer and Bayard put together expeditions that passed along this mountain road and up into the 5,500-hectare Macaya Biosphere Reserve. The Reserve, isolated for millennia at the very tip of Haiti's southwestern peninsula, has long been a repository of biodiversity. Its rugged geography of sharply uplifted coral and deeply recessed valleys has served as a natural avenue for speciation and a natural obstacle to all-out human development. To this day, many of its species of vascular plants, insects, reptiles, and amphibians have yet to be described.

In recent years, however, the surrounding human population has grown significantly, keeping pace with Haiti's overall projections of a doubling every 30 to 40 years. As a member of the 2004 expedition—the first comprehensive avian surveys in this area in 20 years—I witnessed the great anticipation of the burgeoning local population. Many of the "guards" on the park payroll had not been paid, much less visited, in more than a year and they were undoubtedly happy to see us. Women set up makeshift kitchens by the roadside and beside the lone park building to feed the throngs of men who gathered for a chance to be porters and guides. Children clad in scraps of clothing scampered everywhere, the bravest of them flashing broad smiles and yelling wild greetings.

Upon arriving, we shook off the dust, stretched out the aches of our journey up, and set to work immediately. We established a line of 25 mist nets through the area known as Rak Bwa, a karst-lined mosaic of active agriculture, second-growth forest, and thick stands of primary forest, lush with vines and orchids. Our nets filled quickly, and we were amazed by the unexpected abundance of the birdlife. We captured and observed endemic White-winged Warblers—one of Hispaniola's least known and most endangered birds—in groups of three to eight individuals. Tiny, jewel-like Narrow-billed Todies, with their Caribbean mix of emerald green and scarlet red feathers, sallied for insects around every bend. Golden Swallows, a sharply declining species, passed overhead in groups of 2 to 12, and we saw one pair investigating a nesting cavity. Gray-crowned Palm-Tanagers, the only bird found in Haiti alone, paraded gregariously around our banding station. The surreal song of the Rufous-throated Solitaire surrounded us in the evening mist, the notes seeming to rise all around.

The avian abundance in Rak Bwa's karst broadleaf forest came as a surprise, given the poorly defined park boundaries and the constant proximity of active agriculture. Wandering cows shredded 10 of our mist nets, and we discovered several freshly slashed and burned patches well within the park boundaries. All day we could hear the sound of the field workers' songs in the not-so-distant vegetable patches, like a low din beneath the songs of birds. Rak Bwa is one of Macaya's most important bird areas, but it is also clearly one of its most threatened.

After several days of recording the avian abundance of Rak Bwa, we moved higher into the less-disturbed area known as Plaine Boeuf. Porters and guides packed our gear on their heads, preferring balance and a straight posture to the ache of nylon straps. A steep ascent led to a forest of towering Hispaniolan pines interspersed with islands of dense montane cloud forest, dominated by thickets of aptly named razor vines. Here, our overall captures were lower than in Rak Bwa, but several important species were abundant. We heard endangered Hispaniolan Crossbills flying high in the stands of pines and found Western Chat-Tanagers—another poorly known, critically endangered endemic—skulking along the wet cloud-forest floor.

In the early mornings and late evenings we paid particular attention to the reclusive Bicknell's Thrush, a migratory species that winters exclusively in the Greater Antilles but whose status in Haiti was unknown. Many of them answered our playback tapes with aggressive territorial responses, and we managed to coax 12 of these shy, spot-breasted thrushes into mist nets so that we could measure them and sample their genetic material—sure confirmation that this threatened migrant can still find suitable habitat in Haiti.

Other migrants sheltering for the winter in Macaya included Black-throated Blue Warblers, Ovenbirds, Cape May Warblers, Yellow-rumped Warblers, Yellow-throated Warblers, Black-and-white Warblers, American Redstarts, Common Yellowthroats, Worm-eating Warblers and, in a first for Haiti, Swainson's Warblers. Together, they underscore the critical importance of Macaya's forests.

*Haiti's subsistence farmers continue to slash and burn the little that is left of the nation's forests (right). Porters and guides tell stories by firelight in Plaine Boeuf (below).*

With all these data in hand, we left Macaya in 2004 with a refreshed sense that much still remained to be preserved in this part of Haiti. And we left not a day too soon: within the week, Jean Bertrand Aristide's government had fallen, all Peace Corps volunteers had been evacuated, and United States Marines were on their way to Haiti.

Rimmer and Bayard returned to Macaya in 2006 and were surprised to find conditions largely unchanged. Park enforcement was no better, but agricultural intrusion was no worse. Additionally, the team went searching for Black-capped Petrels. This globally threatened pelagic bird is now known to nest only on the exposed limestone cliffs of Hispaniola and Cuba. After making some treacherous nighttime hikes along cliffsides in the rain, they were rewarded by seeing at least four of these rare birds—confirmation that this species hangs on in Haiti. Rimmer was also surprised in 2006 to observe a group of Hispaniolan Parrots, a species that they had not found in 2004 and that is under severe pressure from the domestic caged-bird trade.

In 2005, Rimmer and Bayard organized an expedition to the much more degraded 3,000-

*The lush cloud-forest habitat at the core of Macaya Biosphere Reserve (right) provides a final refuge for endemic species such as the Broad-billed Tody (above), always intent on catching passing insects.*

hectare La Visite National Park, in the eastern Masif de La Selle, along the border with the Dominican Republic. The highlights included a list of migratory species similar to that of Macaya and several sightings of the La Selle Thrush, a rare endemic. Rimmer's team also confirmed the presence of at least two Black-capped Petrels within La Visite, and they spoke with a guide who talked of capturing dozens of them in a single night, using bonfires to trick the night-flying birds into flying into nets—a practice apparently abandoned in recent years due to their dwindling numbers. Unfortunately, the team did not find any White-winged Warblers, Hispaniolan Parrots, or Hispaniolan Parakeets, all species formerly found in the area and easily detected further east in the better-protected parks of the Dominican Republic. They also captured only adult Green-tailed Warblers and Black-crowned Palm-Tanagers, suggesting that the recruitment of juveniles into the population at La Visite may be insufficient to offset the mortality of adults—a situation that can lead to a precipitous population crash.

Overall, the picture in La Visite is not a bright one. Rimmer reports that a "crisis situation exists, one that can only be resolved through implementation of immediate and stringent measures to prevent further loss of broadleaf forests, and carefully controlled reforestation efforts." He saw no evidence of conservation enforcement within the park, and instead witnessed unregulated harvesting of trees. Without a concerted international effort to enforce the conservation plans that have been written for La Visite, he says, "there can be little doubt that resident and migrant bird populations dependent on broadleaf forests will become extirpated from the park within three to five years."

Clearly, Haiti's environmental plight is daunting, and it frequently takes a back seat to the country's many other problems. Often, Bayard is confronted with this question: Why worry about birds in a place where so many people are suffering? His answer is simple: the people, like the birds, cannot be separated from the land. If the land is suffering and being abused, so too are the people and the birds. When the resident birds of Haiti are gone, when migrants must all pass over Haiti and squeeze themselves into the remaining habitat in the Dominican Republic, it will be too late, Bayard believes, to salvage the Haitian forest, and a great basic necessity will be lost to Haitian society. The land will be so sun-scorched, so eroded and treeless, that there will be no hope of a good harvest, and the people will be unable to feed themselves.

Bayard believes that conservation is integral to building a better Haitian society. His model of one local NGO partnering with several international NGOs has created some progress toward raising conservation awareness—both in Haiti and abroad. It is Bayard's hope that more researchers will renew interest in Haiti—in its unique flora, its herpetofauna, and its birds. Macaya and La Visite are biodiversity hotspots and Bayard's "little birds" are members of an endemic bird community of global importance. For the future of Haiti, and of global biodiversity, they cannot be allowed to slip away. "We cannot imagine," Bayard says, "that Mr. Audubon, were he alive today, would have stood by, watching the birds disappear from the country where he was born." ■

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*Jason Townsend is a Ph.D. student at the State University of New York College of Environmental Science and Forestry and is currently studying the winter ecology of the Bicknell's Thrush in Haiti and the Dominican Republic. In 2004, he was a member of the first team of ornithologists to enter Haiti in 20 years—an expedition led by Chris Rimmer of the Vermont Institute of Natural Science.*

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# DIGISCOPING REVISITED

BY KEVIN J. MCGOWAN

### *Six years after his initial article, McGowan takes another look at this hot topic in birding*

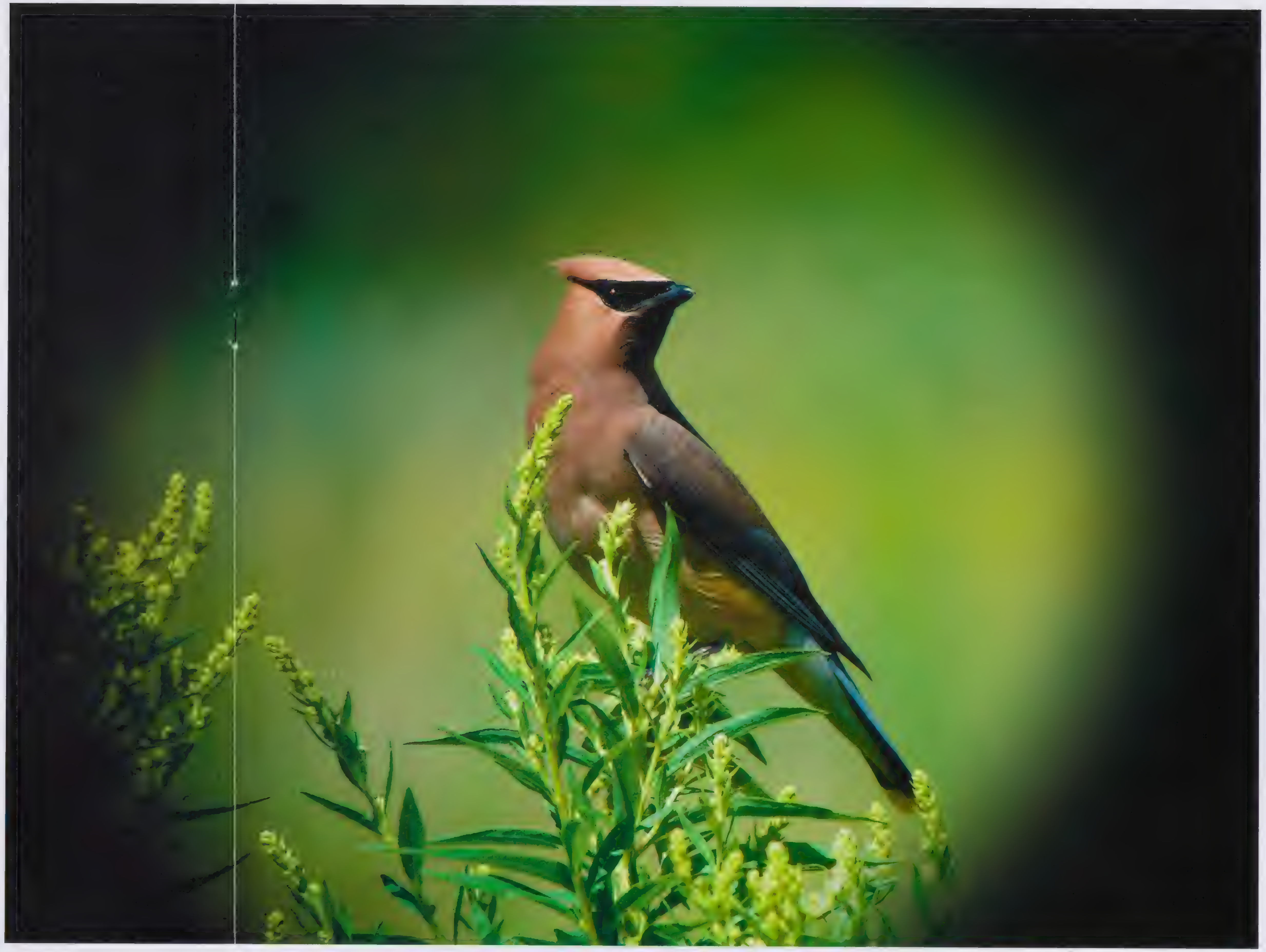
In the Autumn 2001 issue of *Living Bird* I wrote an article describing a camera technique that my son, Jay, and I had developed the year before to take pictures through a spotting scope with a pocket digital camera. Although we came up with the technique independently, apparently many people across the globe had developed the same idea, and it had been christened "digiscoping." Lawrence Poh of Malaysia is generally credited with devising the technique first, and he is often called "the father of digiscoping."

We were excited about the technique because it allowed us to take pretty good pictures of birds without having to buy expensive telephoto lenses. Also, it was our first foray into digital photography, where pictures cost essentially nothing and taking hundreds is an option. By the time I wrote that article, we were hooked by the process and had gotten a number of other birders into it too.

I was a vocal advocate of the technique and encouraged everyone to try it. As a member of the New York State Avian Records Committee, which evaluates rare bird sightings in the state, I had a selfish motive in trying to get everyone who found rare birds to document them, and digiscoping made it easy.

KEVIN J. McGOWAN (2)

*Roy Halpin (left) and Jay McGowan take digiscope pictures at Cape May State Park this past May during the 2006 World Series of Birding. Their team, the "Swarovski Digiscoping Hawks," won first place in the digiscoping division.*



*The author photographed this Cedar Waxwing with a scope and camera at the Lab of Ornithology this past August. The vignetting or darkening of the edges in this picture can be easily eliminated by zooming in before taking the picture or cropping the final image.*

So, what happened? Did it catch on? What is the current state of the digiscoping world six years later?

The simple answer is that it caught on in a *huge* way. Thousands or perhaps millions of people around the world now practice digiscoping. As the idea spread by word of mouth and Internet chat groups, more people across the globe started doing it. You now see digiscoped images everywhere, and they have become the standard for rare bird documentation. A rare bird report with a photograph is no longer the oddity but the expectation. Reports without them are treated as second class (some say undeservedly so) and are viewed with disappointment. Although I know of no one who

BHL

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makes a living taking only digiscoped images, such photographs are all over the Internet, in magazines, and even on calendars. Without digiscoping, the Internet would be a much less birdy place.

Many people have chosen digiscoping as their main hobby, and tour groups now offer digiscoping excursions to exotic places. Even the World Series of Birding, held each May in New Jersey, inaugurated a digiscoping category last year. (Our team—the Swarovski Digiscoping Hawks—won top honors with 124 species photographed between sunrise and sunset.) Who would have thought that such a simple technique could have caused such a revolution in birding circles?

For people who are unfamiliar with the technique, it is simple: focus your spotting scope on a bird, hold up a digital camera (with the viewing screen turned on) to the scope's ocular lens until you can see the bird in the screen, and snap the picture. Everything else derives from this simple starting point. But you don't need to stop at spotting scopes. If you can look through it, you can take pictures through it. We regularly take decent photographs using binoculars and microscopes, and the same principles apply.

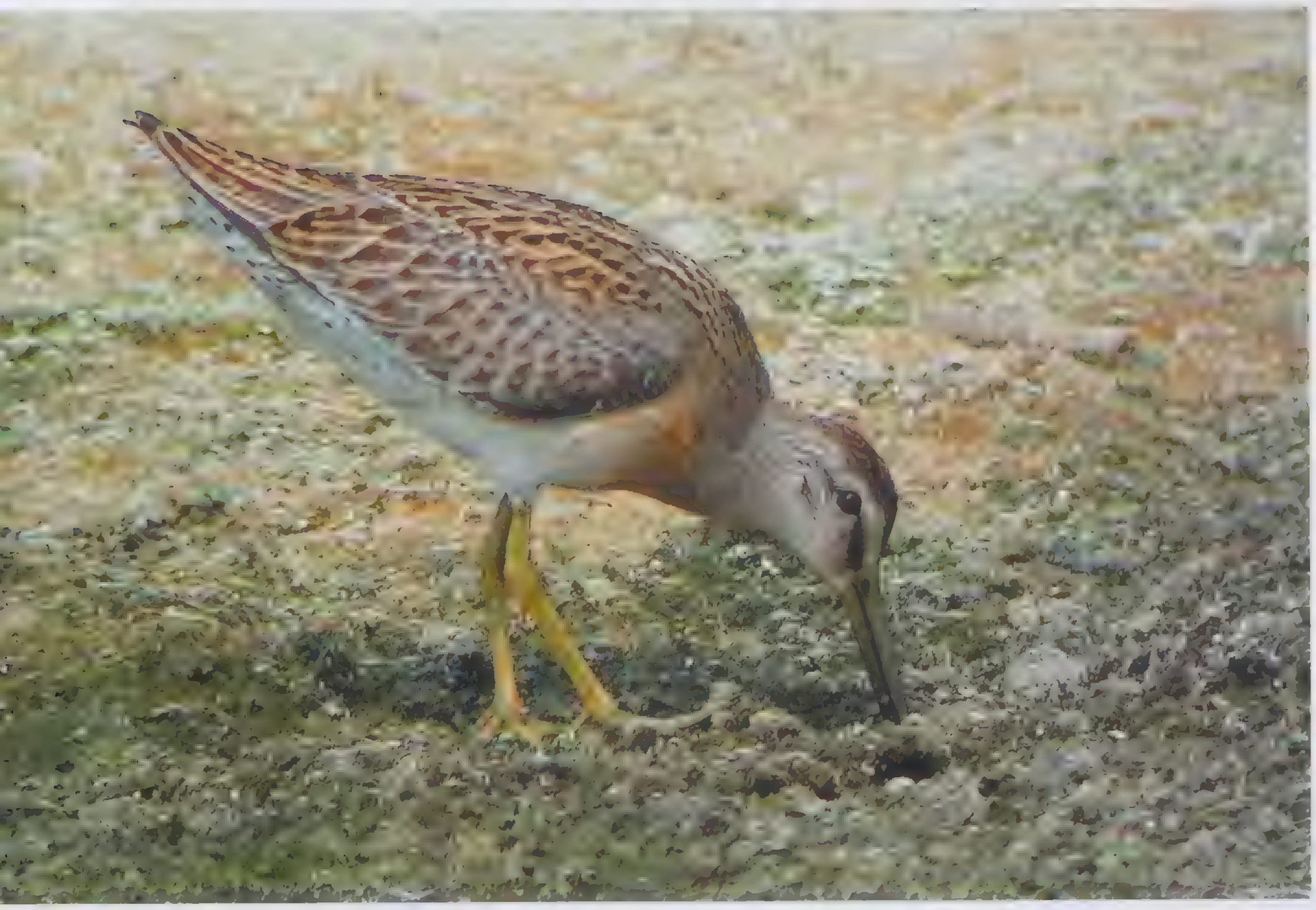
Digital cameras have improved greatly in the last few years, and digiscoping is easier than ever. Most important is the processing speed of the cameras. With most digital cameras you can now take multiple pictures quickly without having to wait those agonizing seconds between shots while the camera processes the image. Some digital single-lens-reflex (SLR) cameras can take multiple shots as quickly as a film camera with a motor drive—up to five per second. Another new feature in some cameras is a touch-screen for focusing: you touch the part of the image you want to be in focus (usually the bird), and the camera focuses on that—and not on the stick in front of it. Pretty slick. For my aging eyes, the advent of large screens, more than 2.5 inches wide, was another important step.

Our original camera-scope combination was a rather fortuitous one—the camera and scope lenses matched easily with no additional fiddling. Fewer of the cameras match the scope this well anymore, because many of the manufacturers have reduced the lens diameter in their pocket digital cameras. Today, a small camera will almost certainly require some kind of adapter to keep the lens centered and at the proper distance from the ocular lens of the scope.

Several kinds of adapters are available commercially; many are specific to the make of the scope and camera. A direct, tubular connection, such as the Swarovski DCA, requires the camera to have mounting threads (which are used to attach various filters or external lenses). If your camera has such threads, this is a great adapter, fast to use and secure in its attachment. But few point-and-shoot cameras have these threads anymore. The new Nikon FSB-3 Adapter works similarly on the scope, but fits onto the camera differently. Unfortunately, it works only with Nikon cameras. The Leica Digital Adapter 2 uses a padded clamp to hold the camera and will fit many different models.

A number of adapters have levers and extensions that allow the camera to be mounted in the proper position behind the scope lens using the tripod mount screw on the bottom of the camera. Some, such as the Swarovski DCB and the Zeiss Quick Camera Adapter, allow the camera to be moved out of the way to provide normal scope viewing. The camera can then be quickly swiveled into position to take photographs.

Because I am usually birding first and digiscoping second, I like to be able to make fast transitions between normal scope use and digiscoping. I have avoided using firm attachments until recently, when I started using a Sony camera with filter threads that let me use the Swarovski DCA. I like the results from using this adapter, but like all adapters made specifically for one scope, it is expensive.



*A juvenile Short-billed Dowitcher, photographed in August in Cape May, New Jersey, shows the brilliantly tiger-striped tertials (feathers over the tail) that distinguish the species from juvenile Long-billed Dowitchers. Having a digiscope image makes it easy to recheck these distinguishing features on the birds you see.*

JAY AND KEVIN McGOWAN (2)

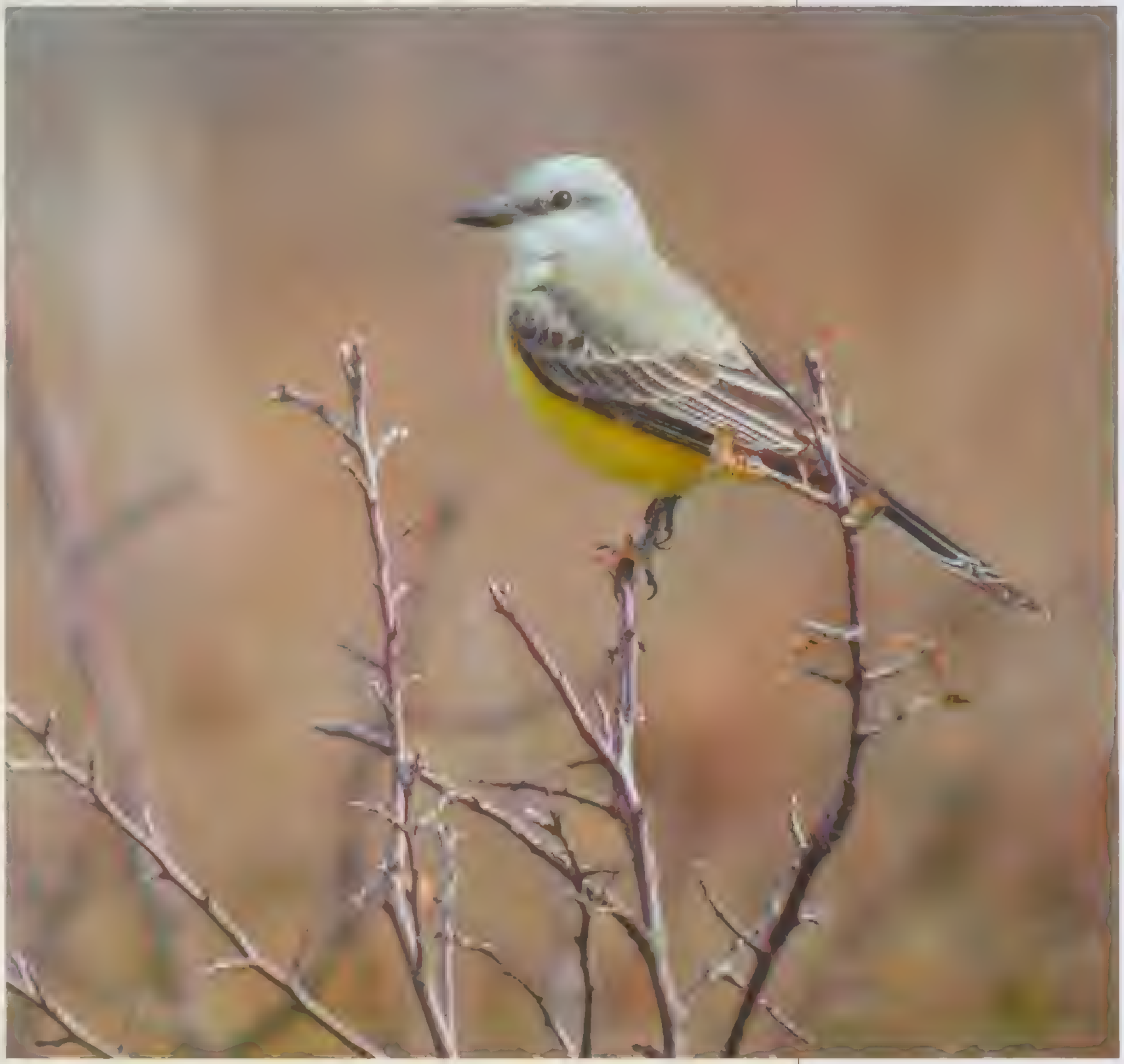
## EQUIPMENT RECOMMENDATIONS

People often ask me to recommend particular scopes and cameras. I usually try to avoid giving a specific answer. Camera models change so quickly that any recommendation is rapidly out of date, and, quite frankly, I cannot keep up with them. Nearly any combination of camera and scope will give adequate results, but some are better than others. It is best to take your scope with you when shopping for a camera (or your camera with you when shopping for a scope) to see how they match up. Remember, the camera lens has to fit into the cone of light coming from the scope eyepiece. A spacer or adapter helps, but if you can't see anything, even for a split second, the match is bad. The quality of the scope matters more than the quality of the camera, so spend your money accordingly.

We took many decent photographs with our original 1-megapixel camera, but it was quickly clear that our pictures suffered from the low resolution. We upgraded to a 4-megapixel camera, then a 5-megapixel, and now we're using a 7-megapixel Sony Sureshot WSC-7. It is not clear whether a further increase in definition would produce much better photographs, but we will probably opt for more resolution when it becomes available. Certainly if you are just starting out, get at least a 5-megapixel camera and consider something with even more resolution.

I still prefer cameras that use AA batteries rather than the expensive proprietary lithium ones, although those are conveniently sized and last a long time. When we are photographing rare or particularly cooperative birds, we may take hundreds of photographs in a day. We always have several backup sets of batteries with us and may go through several. One or two batteries, even the best, might not be enough. And if you run out of power with your proprietary batteries, you are out of luck. With AAs, you can always pick up a spare set at the corner store or gas station. I currently use the fast-charge nickel-metal hydride batteries, and I love them. Not only are they as fast to charge as the name suggests, allowing you to replenish several sets before you go to bed, they last longer in my camera, providing more shots than any other batteries I have tried.

The settings you use on your camera can vary, depending on the situations you find yourself and the birds in. You can take many good photographs with the camera in basic auto mode with no special adjustments. But you should turn off the camera's flash. The autofocus should be on, although it may be useful to set the camera on distant focus and adjust focus with the scope to decrease the processing time when you are taking a series of photographs of a stationary object. I recommend setting the autofocus to center for most bird photographs, but you can use the multi setting for artistic shots with the bird out of the center of the image. I generally have not gotten good results using the exposure meter set at spot metering; I do better with center-weighted or normal settings. Of course if your bird is badly backlit or pure white, you might want to work with spot metering. I also like to use program rather than full auto mode so that I can adjust the exposure levels quickly.



*This unusual kingbird was photographed in Livingston County, New York, in November 2003. Digiscoped images helped establish it as a hybrid between Couch's Kingbird and Scissor-tailed Flycatcher. Note the extreme difference in length between the central and outer tail feathers.*

## THE ART OF DIGISCOPING

Let me go through the basic process in a little more detail. If you use only a spacer-adapter (or none at all), start with your scope on low power, focused on a bird or other object of interest. Unlike a single-lens-reflex camera, which has a focusing screen matched to the film plane, a scope has no "perfectly" in-focus point. For clarity, the scope needs to focus on the lens of your eye, but your eye may not fit at exactly the same point as the camera lens. Also, if you do not have perfect vision or perfect correction, you may be compensating by focusing the scope at a different point. (Have you noticed how different people need to change the focus of a scope when they are taking turns looking through it?) If you have good, or well-corrected, vision, get the image as sharp as possible. You may achieve better focus by using your "off" or nondominant eye. If you do a lot of scope work, you have probably trained your dominant eye to adjust to minor deviations from the optimal focus, but your off-eye does not accommodate (adjust) as easily, and the focus point it demands will be closer to the "real" one.

Hold the camera (and its adapter) up to the scope, and then zoom in the camera to get wholly within the cone of light coming out of the scope. Zooming is a trade-off: the higher the camera zoom, the larger the image and the less the vignetting—but the more difficult it is to get the picture really sharp. Some people like to zoom in only enough to get rid of the black circle present at low power so that they have the maximum depth of field and the best chance of getting the bird into really sharp focus. Others like to make the image larger so that it can be enlarged more on the computer. In my opinion neither option is completely compelling. They both result in more or less the same image when you blow them up to a given size; any extra sharpness in the less-zoomed image is compensated for by the extra pixels making up the image of the more-zoomed picture, and the prints will turn out more or less the same.

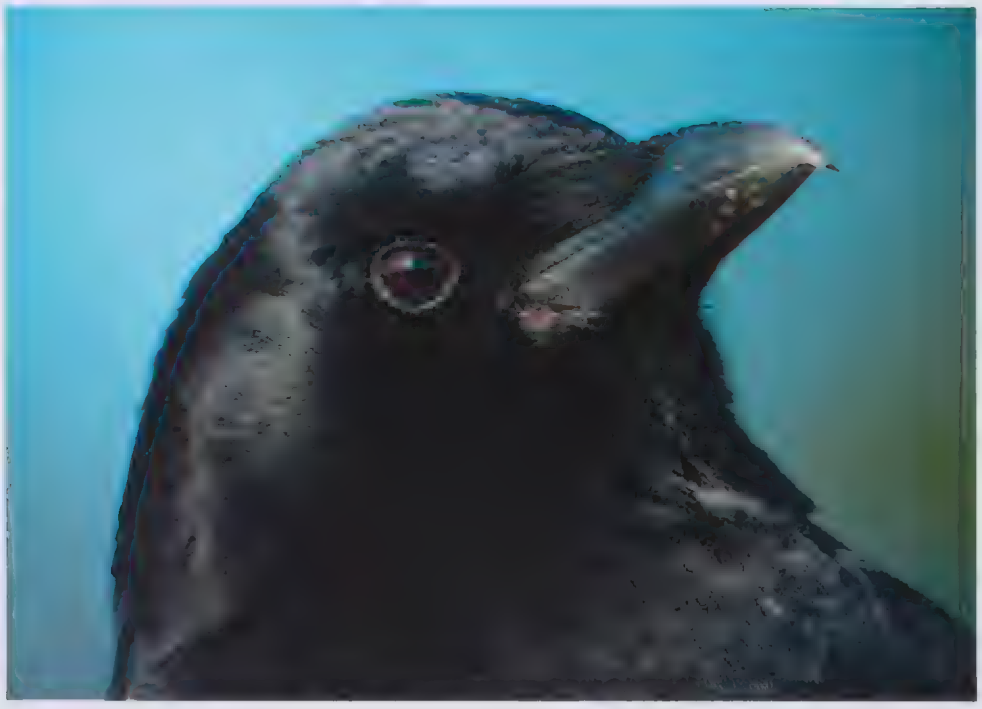
Hold the camera shutter partway down to engage the autofocus and auto-exposure. While holding the shutter down, check the focus on the screen to make sure the camera is focused on the same thing as you. (It might be focused on a twig in front of the bird or something else.) If it is slightly off, reengage the autofocus by letting go and starting again. Alternatively, adjust the focus with the focus wheel of the scope. Using this method to get really sharp focus is a little tricky and can be affected by your age, ability to close-focus, and especially by the size and resolution of your camera screen. Unlike the fresnel focusing screens in SLR cameras, the digital screen does nothing special to help you decide on the focus.

Depress the shutter and take the picture. Technique is important here. If you are jerky, your pictures will be blurry. If you are using an adapter fixed to the scope, several additional options will help you obtain sharper pictures. If your camera has a remote control or can take a cable release, use those. If not, use the self-timer, which will take the picture smoothly after your trembling fingers have left the setup and the tripod has settled down again. This method is especially useful in low-light situations when the shutter speed is low, but it is better for portrait shots of a stationary subject than for capturing behavior. Another option is to use the otherwise annoying delay found in most pocket digital cameras between the instant you depress the shutter-release button and when the camera actually takes the picture. Some cameras take up to two seconds to respond, and that time can allow your scope and tripod to stop trembling, giving you a sharper picture. If you are not using a fixed adapter, then you need to practice a smooth release. As in archery or shooting a rifle, holding your breath and relaxing before pressing the button will improve the results. Practice helps a lot.

KEVIN AND JAY MCGOWAN

*An Eastern Phoebe (above) perches with a hoverfly it just caught. A moment later, the bird fed the insect to its young in a nearby nest. With digiscoping, taking a picture like this is not much more difficult than looking through a spotting scope. You just put the digital camera up to the scope's eyepiece, check the focus, and snap the picture.*

KEVIN J. MCGOWAN (2)



Some cost more than the camera you might use with them.

But digiscoping does not have to be expensive. Jay and I have successfully used a very different kind of adapter with a variety of cameras: a plastic juice bottle screw cap with a hole drilled in the center. (It costs only $1.50, and you get to drink the juice.) This "adapter" is actually more of a spacer, which allows the camera lens to be positioned and held at the appropriate distance from the scope lens, and it helps square the camera up to avoid gradual blackening (vignetting) at the edges of the photographs. This was a constant feature of the photographs from our original combination, but it rarely happens now. It still happens when I take pictures through binoculars with the adapter, but that's because my technique in this procedure is still bad.

Make no mistake: you can get significantly sharper photographs using an adapter. Digiscoping is by its nature high-magnification photography, and the higher the magnification, the greater the effect of any kind of shake. To improve your results, use a good tripod, a solid adapter, and a cable release or camera self-timer. And keep out of the wind if possible. But the joy of digiscoping can be just as great with a bottle-cap adapter, and once you perfect your technique, you can take superb photographs too.

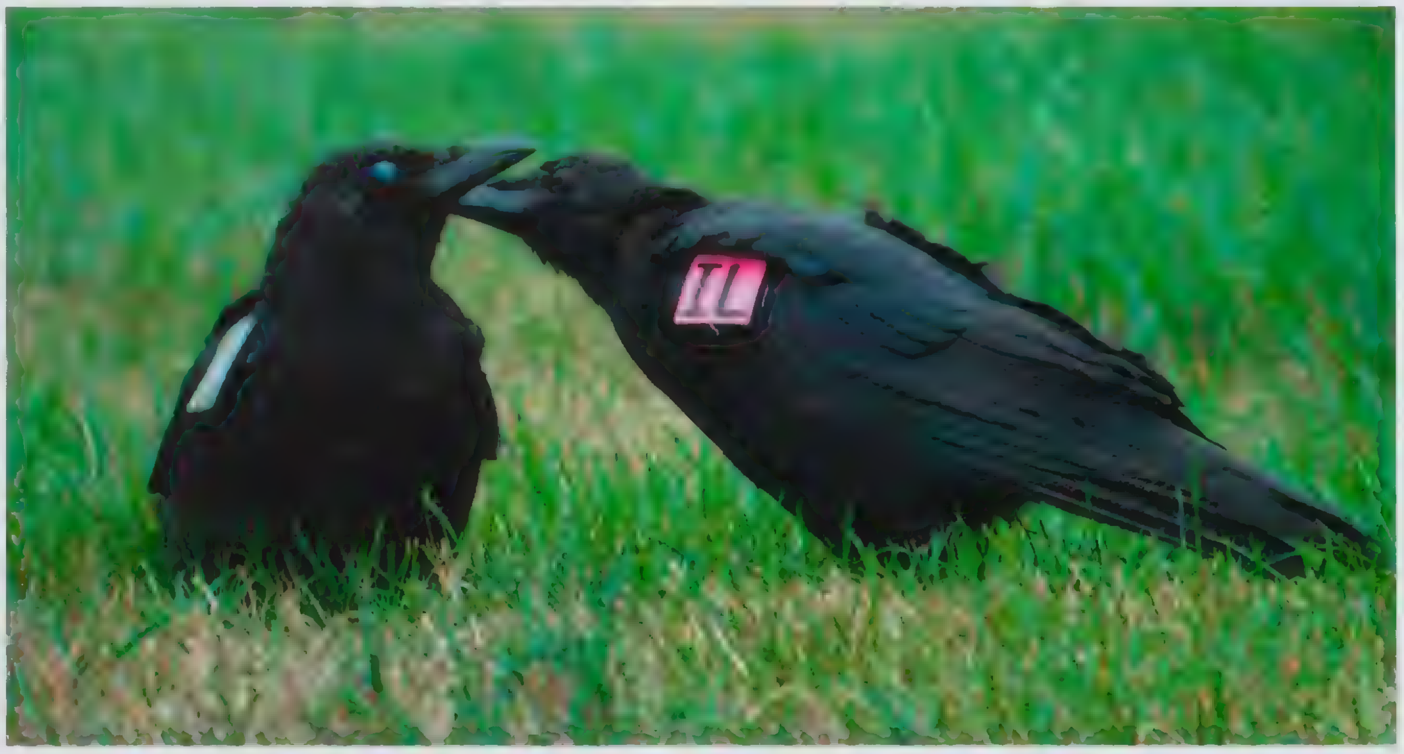
Why digiscope? Lots of reasons. First and foremost, it's fun. Practically anyone can take decent pictures of birds with little training or preparation. You can use them as backgrounds on your computer, send them to friends, or put them on your web site or in a local newsletter.

Digiscoping lets you document your experiences. I was once told that when I went to Africa for the first time I should forget about lions and just concentrate on taking pictures of people, because you can buy much better photographs of lions than you can ever take yourself. But I found that I enjoy my miserable lion photographs quite a bit, thank you, because they bring back the whole experience. No, they're not great pictures, but they do hold lots of memories. Digiscoping lets you document your birding memories in a better way than was previously possible. And speaking of documenting, everyone who looks for rare birds should try to document them with photographs. Trying to decipher written bird reports is difficult and inexact work, and having even blurry photographs helps tremendously. Digiscoping makes important documentation much easier.

Like any kind of photography, digiscoping lends itself to creating artistically pleasing images. The only limit is your imagination. Although it is tricky, it is possible to produce professional-quality photographs with this technique. It takes skill, luck, cooperative birds, and good light. And, as always, good equipment helps.

As a professional ornithologist, I find digiscoping invaluable in my studies. It has helped me document much interesting behavior and, even more importantly, has improved my ability to keep track of my individually marked crows. The camera provides electronic field notes. I take pictures of the marked crows

*At left, a portrait of the breeding male in the "NEEL" family, a large and rather tame group of crows the author studies in Ithaca, New York. Below, IL, a 5-month-old crow, is allopreening his 3-year-old uncle, 0E, who helped raise him. IL had been trying to get 0E to allopreen him for 15 minutes before doing a little allopreening himself. Such mutual grooming is relatively uncommon in most species of birds.*



whenever I see them, and I can easily see the condition of their tags and bands, as well as the progression of any external disease (we currently are experiencing an epidemic of avian pox that can be seen on the crows' faces and feet). The camera encodes the date and time the picture was taken into the image file itself, which is a great help for my faulty memory. I can even take pictures of distant crows that I could not identify in the field and pick out the colors and numbers on their bands later when I blow the photographs up on my camera or computer. When looking for crows in my study area, I always take my camera along with my binoculars and spotting scope.

KEVIN J. MCGOWAN (2)

*A Fiery-necked Nightjar illuminated by the headlights of the tour bus during a digiscoping tour of South Africa. The bird sat on the dirt road leading into the Bonamanzi Reserve in Kwa-zulu-Natal province. Even in very low light you can photograph a stationary bird by using an adapter and the camera's self-timer.*

I also use our bird photographs as something akin to bird specimens. They are good for examining the variability of plumage and structure of different species. They are especially useful as references for art or illustrations. Even a slightly out-of-focus shot of a bird with its head turned away might show the undertail coverts nicely.

The different poles of the digiscoping continuum were nicely illustrated by two events in which I participated this past year. I was a team member of the Swarovski Digiscoping Hawks in the digiscoping category of the World Series of Birding in May, and I was invited to attend a digiscoping tour of South Africa, sponsored by Swarovski. The goal of the World Series event was (surprise, surprise) to photograph as many species as possible in one day. The bird had to be identifiable, but the picture did not have to be all that good. The South Africa trip, on the other hand, was all about taking really nice pictures of whatever we could find. No one there was trying to take pictures of everything we saw (except me); rather they were trying to take the prettiest, sharpest pictures possible.

Fortunately for me, I enjoy all aspects of digiscoping, just as I enjoy all the birding games. I can run a big day with the best of them, shouting "got it" and snapping a quick photograph, or I can spend hours with an individual bird, watching what it is doing and waiting for the perfect shot.

The World Series event was a fun whirlwind. I was actually the designated driver and route planner and didn't get to take any photographs that counted. Only three photographers were allowed on a team, and ours were Jay, Roy Halpin, and captain Clay Taylor of Swarovski. Roy has been digiscoping for years, and Clay has long been one of the most active proponents of the sport in the United States. They were using some very nice digital SLR cameras attached to their Swarovski scopes (I definitely envied Clay's five-frames-per-second speed). Because the digiscoping event was restricted to daylight hours (no flash allowed), it was quite different from my other 16 times competing in the World Series, when I was a Cornell Lab of Ornithology "Sapsucker." No longer was a chip note sufficient. We ended up waiting 15 minutes for a White-eyed Vireo to appear; it wouldn't have rated a slow-down in a jog across the Higbee Beach field in any other year. We were competing in a much more limited area than I had in previous years, when we were scouring the entire state, but that meant that we could proceed at a (slightly) slower pace and enjoy the birds a little more. And in the end we actually had something concrete to show for our efforts—the photographs—not

## DO YOU DIGISCOPE?

Then consider submitting your best digiscoped image to the Cornell Lab of Ornithology Digiscoping Contest. Just visit our web site at <birds.cornell.edu/forms/livingbird> and upload your entry before June 1, 2007. We will select three finalists and publish their winning images in the Autumn 2007 issue of *Living Bird*.

The Grand Prize winner will receive an exclusive Lab of Ornithology gift pack valued at more than $300!

To be eligible, all images entered in the contest must be taken with a digital camera and a spotting scope—not with a high-powered telephoto lens. Only one entry per person please.

just a long list, total exhaustion, and some good, if fuzzy, memories. Some of the pictures were great, many were not, but it was still lots of fun. Take-home lessons: SLR cameras are worth saving up for, and youth helps tremendously.

The digiscoping tour of South Africa was even more fun in its own way, but it had its share of frustrations too. Since the goal was digiscoping, I wanted to photograph everything I saw, and coming off the World Series, I was taking pictures fast and furiously. My companions, however, were mostly magazine writers and photographers, and their goal was to take one brilliant picture, not dozens of crummy ones of everything. Gerald Dobler of Swarovski Optik, the leader of the trip, was obsessed with crystal-sharp images and dismissed everything else. And he could deliver. His technique of making his camera's delay work for him produced some wonderful results. But if the conditions were not right for such photographs, he wasn't interested in trying. We were told not even to bring our scopes or cameras into the Dlinza Forest, where we were looking for endemics in the shadows. I ignored that edict and managed to get a poor grainy-but-memorable picture of a Spotted Ground-Thrush.

The emphasis on really good photographs was beneficial for me, because it helped me think a little harder about my technique. I appreciated the DCA adapter more, and I started using the delay timer on my camera regularly. I also backed off on the camera zoom and took more pictures circled with black vignetting, which I could crop out later.

The nice part about concentrating on good photographs and not rare birds was that suddenly parking lots and hotel gardens became some of the best places to be. A good flowering bush that attracted birds kept us entertained for hours. The downside was that some great endemic birds, such as the Rudd's Lark, were impossible to photograph. The take-home lessons from this trip were that digiscoping has great potential for taking really good photographs, but I was going to have to work harder to get them consistently. My experience reaffirmed my view that producing excellent photographs is not the sole purpose of digiscoping. Yes, I want my pictures to be as sharp and lovely as possible, but I digiscope for other reasons too, and a slightly out of focus Ashy Flycatcher with a gray background in early-morning light can make a pleasing image.

One interesting consequence of the digiscoping craze is the increasing number of people who have graduated to (or returned to) SLR cameras, using the shorter but sharper camera lenses. Recent developments in SLR technology are something of a revolution. The fast autofocus and image-stabilization systems in the larger lenses are amazing and make possible some spectacular photographs of birds in flight. I would love to give them a try, but the prices are a bit daunting. For now, I'm still digiscoping.

Bottom line: you do not need to spend big bucks or buy fancy equipment to take good pictures of birds and have fun. If you want professional-level results, you might have to work harder and spend a little more, but you can enjoy the main benefits of digiscoping simply and cheaply. If you already own a spotting scope and a digital camera, get out there and give it a try. You might just never quit. ■

*A Common (black-eyed) Bulbul at the Mkuzi Game Reserve, Kwazulu-Natal, South Africa. This is perhaps the most common bird in the country.*

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*Kevin J. McGowan is a Cornell researcher who studies crows. He is a technical editor for this magazine.*

# Name That Warbler

BY DAVID BONTER AND IRBY LOVETTE

ILLUSTRATIONS BY BENJAMIN CLOCK

*Can you figure out the parentage of this previously undocumented mystery bird?*

For a bird bander like David Junkin, approaching a mist net is "like going to the mailbox—you never know what you may find." An early morning of bird banding in 2006 turned up a true mystery bird for Junkin, who runs a banding station near his home in Wethersfield, New York, with his wife and research partner, Sandy.

Experienced bird banders are rarely completely stumped by the birds they catch, particularly when the birds are netted in a familiar location. However, on June 27, 2006, David found a unique warbler—one that no one could identify—suspended in the billowing folds of his nylon-mesh mist net. The mystery bird would soon become known informally as the "Junkin's Warbler." Deciphering its true identity would ultimately require the unlikely combination of a feather and a high-tech analysis at the Cornell Lab of Ornithology.

David has been banding birds for 50 years, ever since a high-school biology teacher inspired him to acquire his own license to band birds from the federal government at age 18. Over the intervening years David has banded more than 25,000 birds, ranging from Golden-crowned Kinglets to Herring Gulls. Despite this half-century of experience, David had never before encountered an unknown bird.

The Junkins were banding birds that day as part of the Monitoring Avian Productivity and Survivorship (MAPS) project. MAPS was created by the Institute for Bird Populations in 1989 and now enlists 500 banding stations to help study the survival and reproductive success of more than 120 North American landbirds. Each MAPS station runs a set of 10 mist nets every 10 days during the breeding season. The birds captured in these nearly invisible nylon nets are quickly aged, measured, and sent on their way wearing a lightweight aluminum leg band provided by the federal Bird Banding Laboratory.

As David approached one of his nets at 9:30 A.M. on that summer morning, he knew that he was looking at a bird unlike any he had seen before. Was it a new species for the site? Even upon close inspection in his hand, the warbler's identity remained uncertain. Maybe it was a "Sutton's Warbler"—a rare hybrid between a Northern Parula and a Yellow-throated Warbler. Or was it an even more unusual hybrid, possibly one that had never before been documented?

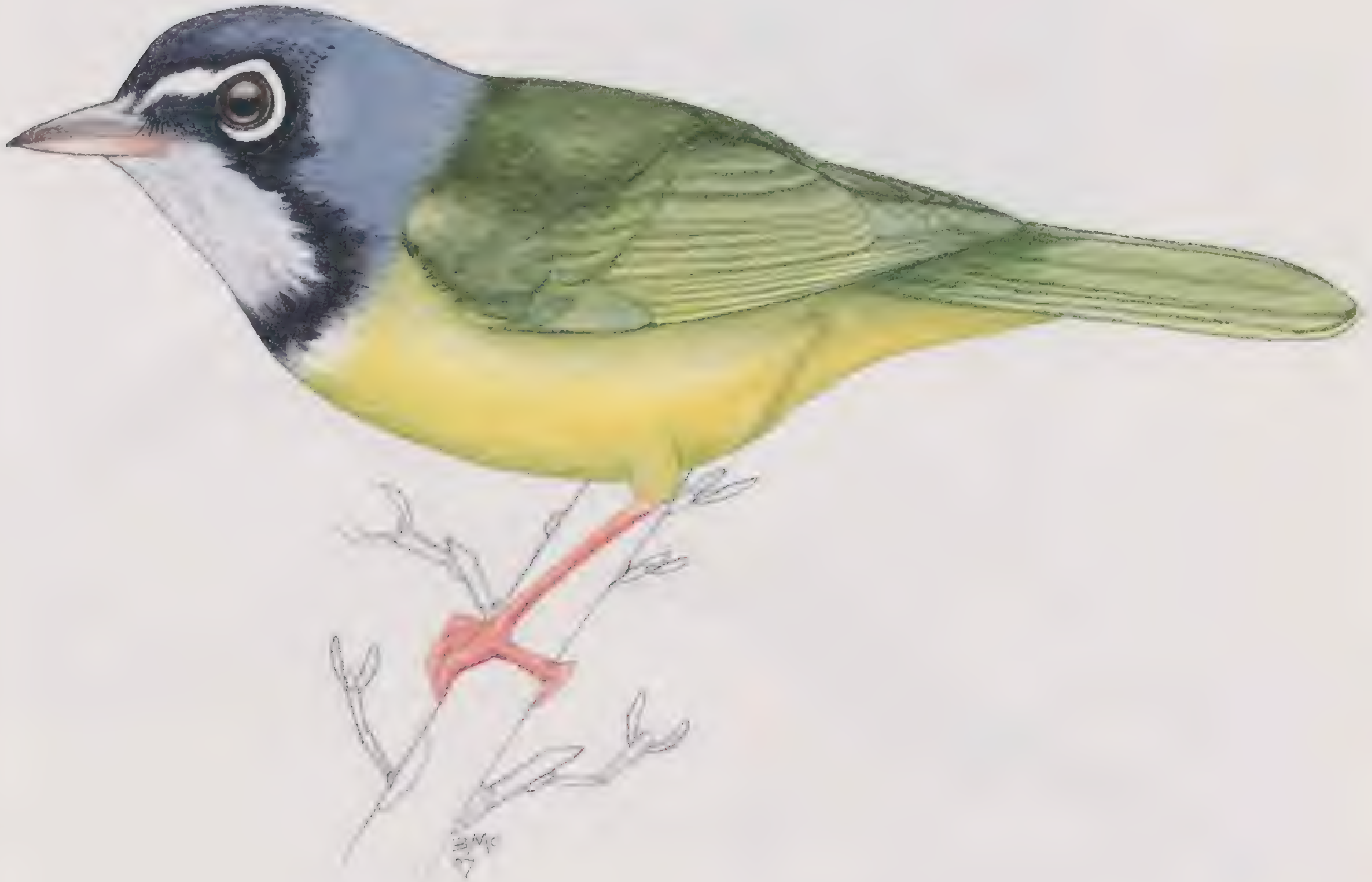
The Junkins, both experienced birders, consulted various field guides and reference books, but nowhere could they find a description that matched the bird they had caught. David then called Betsy Brooks, a researcher at Braddock Bay Bird Observatory in Rochester, New York, who has banded more than 100,000 birds. They all discussed the field marks of the mystery warbler. Still unable to identify the bird, Betsy confirmed David's fears—if the bird could not be identified, it had to be released without a band, because bands can only legally be placed on birds that are identified. After photographing, measuring, and documenting as much information on the bird as possible, the Junkins released the 13.9-gram mystery and watched it fly off into the forest.

During the next few days David shared his photographs with local birders, banders, and ornithologists at the Cornell Lab of Ornithology. The pictures were posted on web sites and led to wide speculation about the bird's identity on email lists and birding blogs. Self-described as "computer illiterate," Junkin was stunned by the barrage of interest in his bird. Was the bird a hybrid? Was it an aberrant individual of a common species? With only photographs and measurements to guide speculation, the bird's true identity might never be known.

Intrigued by the report and photographs circulating on the Internet, several of us at the Cornell Lab of Ornithology stayed in touch with David about his mystery bird. Researchers in the Lab's Fuller Evolutionary Biology program had recently compiled a comprehensive evolutionary tree of the warbler family, which required sequencing DNA samples from all warbler species. Unfortunately, identifying the Junkins' mystery warbler using DNA would require a DNA sample from that bird as well.

This led to a plan: if the mystery bird could be recaptured, the DNA extracted from even a single feather could be compared with the Lab's existing database. David and Sandy had a new goal—to recapture the warbler.

Weeks passed with no sign of the mystery warbler, but then on July 13 the Junkins found



*In June of last year, bird bander David Junkin trapped a songbird unlike any he had ever seen. To distinguish its parentage, Lab of Ornithology researchers performed a DNA analysis on two tail feathers Junkin had plucked from the bird before releasing it. Now we invite our readers to try to determine its true identity. See details at the end of the article.*

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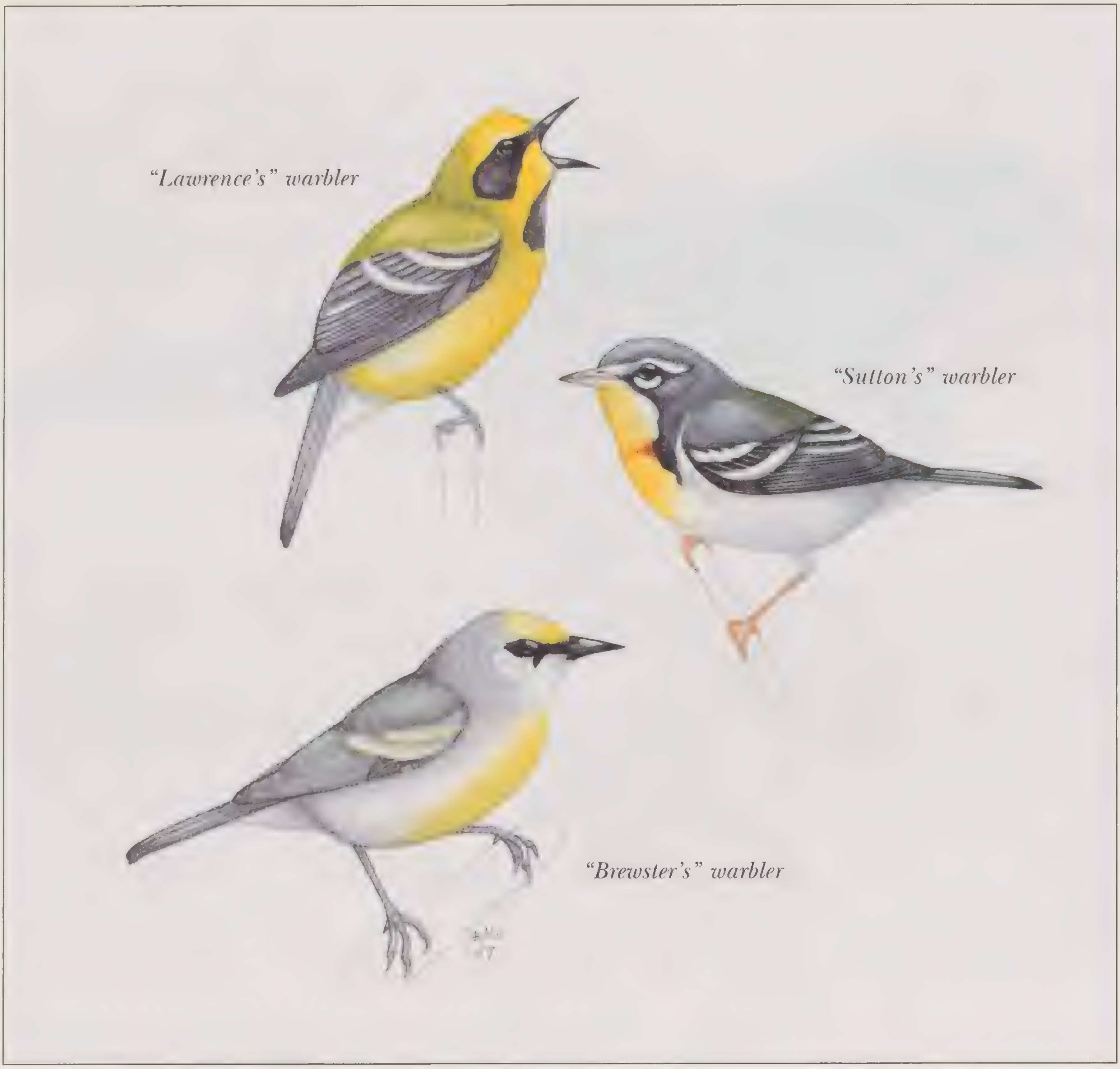


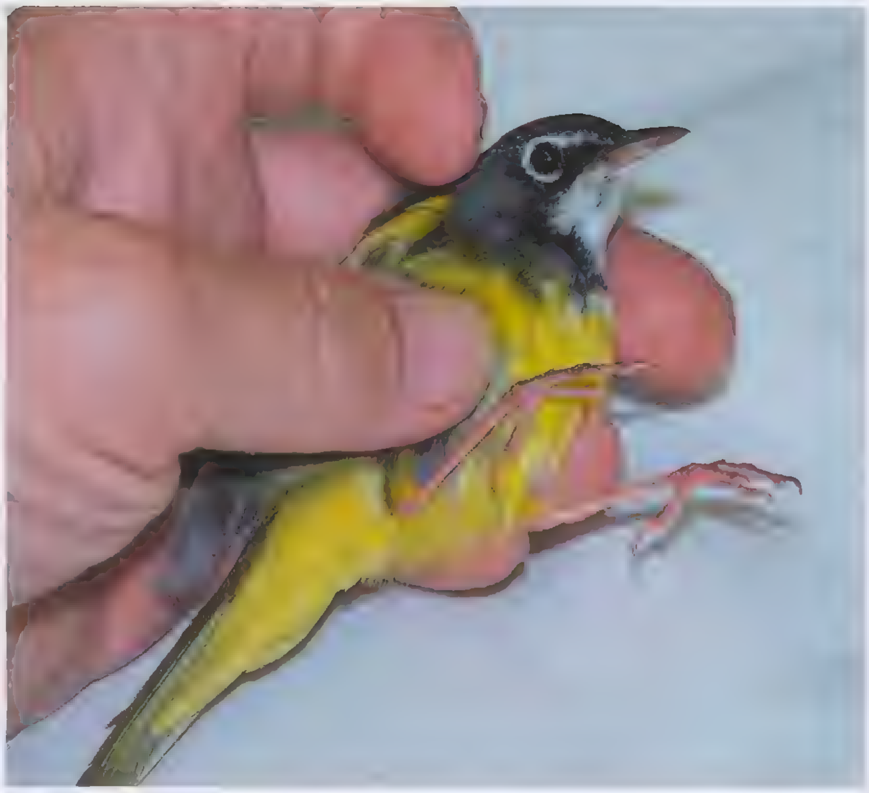
## WARBLER SPECIES THAT AREN'T

Scientists have identified dozens of hybrid crosses between warbler species. Although most combinations are very rare, a few crosses are common enough to be encountered with some regularity. The best known are the hybrids between Blue-winged and Golden-winged warblers, which are depicted in many field guides. Hybrids between these species typically show stereotyped plumage patterns that combine traits from both of the parental species. The most common hybrid form is known as a "Brewster's" warbler; the rarer form is known as a "Lawrence's" warbler. We currently believe that a "Lawrence's" warbler results when two "Brewster's" warblers mate, or when a "Brewster's" warbler backcrosses with one of its parent species, but research into the genetics of hybridization between these species is underway and many questions remain unanswered.

A much less frequently seen hybrid, popularly called the "Sutton's Warbler," is probably a cross between a Northern Parula and a Yellow-throated Warbler.

It is important to remember that these "named" hybrids are not real species, but rather the unusual and probably ephemeral product of a mating between two distinct species. Our use of the term "Junkin's Warbler" follows this popular tradition and is not meant to imply that this hybrid is a new species.

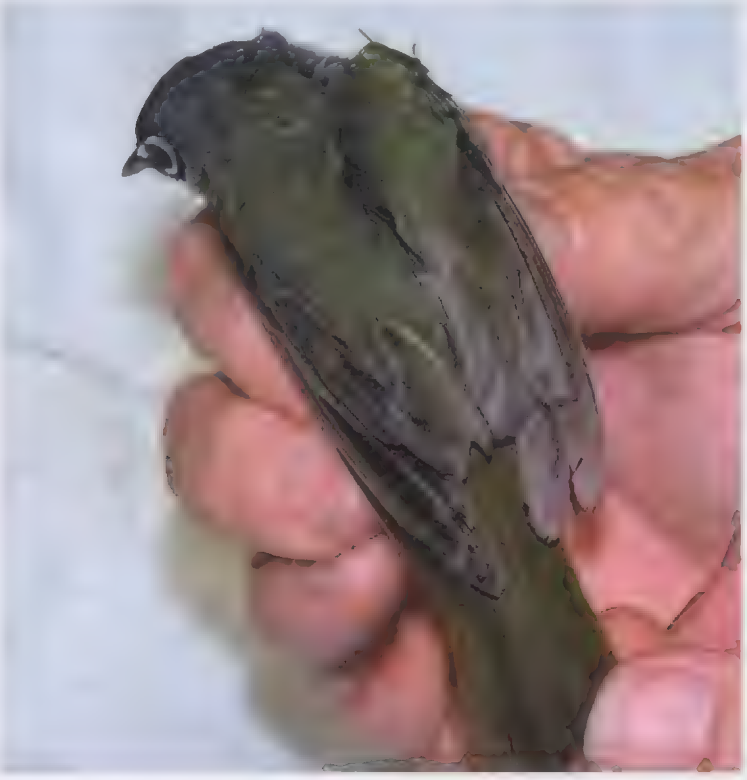
it hanging in the same net in which it had originally been captured. The second visual inspection did not answer any questions, but the Junkins gently plucked two tail feathers from the bird and sent them via certified mail to the Lab. In the intervening weeks David had received permission from the Bird Banding Laboratory to sample and band the bird, and this time the bird was fitted with band number 2120-86194 (under the ID code "hybrid passerine") before being released. Although it was the peak of the breeding season, David detected no signs that the bird was in breeding condition (the bird lacked both a brood patch and a cloacal protuberance). His impression was that the bird was a male, but he never heard it singing. What would the DNA reveal?



*David Junkin holds a mystery songbird he trapped in June 2006. He originally had to release it unbanded, because banding an unidentified bird is illegal. He later received permission from the Bird Banding Laboratory and was able to retrap and band it. Junkin also plucked two tail feathers from the bird for DNA analysis at Cornell. On the facing page, some more commonly seen hybrids: the "Lawrence's" warbler, "Brewster's" warbler, and "Sutton's" warbler. These are not real species but the unusual product of a mating between two distinct species.*

The small feathers David plucked from the bird provided ample DNA. After looking at the photographs making the rounds on the Internet, some people had speculated that the bird was a cross between a Blue-headed Vireo and one of several warbler species, but successful hybridization between such evolutionarily distant families of songbirds is very unlikely. The DNA analysis bore this out and confirmed that the Junkin's Warbler was a hybrid between two warbler species that breed in the Northeast.

By comparing two types of DNA, Lab researchers were able to identify the species of both the bird's mother and father. Identifying the mother was easy, because scientists who study avian evolution rely heavily on the special subset of the bird genome residing in the mitochondrion. This "mitochondrial DNA" is passed only from the mother to her offspring, and its sequence differs substantially even among closely related species. By sequencing the mystery bird's mitochondrial DNA and comparing it with the Lab's database, the mother's identity became instantly clear.



SANDRA JUNKIN (2)

Identifying the father was a bit more difficult, but knowing the mother simplified the process. For this analysis, the genes from the "nuclear genome" of the warbler proved valuable, because (just as in humans) each bird has one copy of these genes inherited from its father and one from its mother. By comparing these nuclear DNA sequences with those of all possible warbler species, the researchers found that one copy matched the database samples of the species already identified as the mother, and the other copy matched the database sequences of a second, different species. This second sequence confirmed the identity of the father.

By now, you are undoubtedly wondering about the identity of this hybrid's parents. Before we tell you our answer, we invite you to examine the illustration and photographs shown here and also the additional photographs posted on the web site <www.allaboutbirds.org/mystery> and make an educated guess about the parent species based on your own observations of the hybrid bird's characteristics.

Once you have settled on your best guess about the bird's mother and father, you can compare your prediction with the DNA-based answer at the web site mentioned above. We will also present the full results in the Summer 2007 issue of *Living Bird.* ■

---

*David Bonter is leader of Project FeederWatch in the Lab of Ornithology's Citizen Science program. Irby Lovette is director of the Lab's Fuller Evolutionary Biology program. Benjamin Clock is assisant curator of Visual Media at the Macaulay Library.*

Flying Field

# KANSAS ON MY MIND

*by Mel White*

## *Wide-open spaces and earth-tone birds*

It's funny how often Kansas pops into my head when I'm thinking about past birding trips. I mean here not so much the literal Kansas—the midwestern state of Dorothy and Dodge City and . . . and all that other stuff that's in Kansas. I mean a figurative Kansas, which stretches from Texas and Oklahoma northward to Canada's prairie provinces, and which in my mind's eye seems a wide rectangle of gold-brown topped with an identically sized rectangle of blue. A Mark Rothko painting with a windmill in the middle.

Because I'm from an intensely forested part of the world, this vast landscape seems to me more exotic than the Amazon. I like it. I've driven across these plains many times now, and still sometimes when I'm traveling there and come to the top of a rise I stop and get out and just look.

Back in the previous millennium, the second out-of-state birding trip I ever made took me across Kansas on the way to Colorado, where a friend of mine was going to attend summer classes. One June day we packed up her bile-green Fiat and took off, and by afternoon we were north of Wichita in terrain I'd never seen before. We stopped at a roadside rest area, got out, and looked. Hence, to this day all flattish amber plains have seemed to me to be Kansas.

BRIAN E. SMALL

*The Pawnee National Grasslands (right) offers a stunning vista of rolling prairie, wildflowers, and birds, such as this male McCown's Longspur (above).*

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I say "flattish" because Kansas, the real Kansas, isn't really flat. A few years ago, two geographers published a study in the satirical journal *Annals of Improbable Research* in which they compared Kansas to a pancake they bought at IHOP and determined that Kansas was, indeed, flatter. Based on my own empirical investigation, this isn't so: most of Kansas is quite rolling, and the prairie-chicken-infested Flint Hills are relatively alpine.

(If you want real flat, go to the Llano Estacado of the Texas Panhandle, where towns have names like Levelland, Plainview, and Earth. Now that's flat. It's flat right to its eastern edge, where it drops hundreds of feet at Palo Duro Canyon and Caprock Canyon, two of the continent's most strikingly beautiful places to go birding. Painted Buntings? Trash.)

I heard my first Western Meadowlark on that Great Plains trip—outside of cowboy movies, I mean—and saw my first Western Kingbird and Lark Bunting. As we approached the Colorado state line, I imagined that the "Welcome to" sign alongside Interstate 70 would stand directly in front of snow-capped mountains and cascading waterfalls, like cutting away from "The Wizard of Oz" to a Coors commercial. I quickly learned that fully a third of Colorado is, in fact, Kansas.

From that and subsequent trips across those plains I remember Yellow-headed Blackbirds in roadside marshes, Ring-necked Pheasants disappearing into rows of corn, flocking Franklin's Gulls, and a magnificent soaring Ferruginous Hawk—this last one actually in extreme northeastern New Mexico, which is also Kansas, only with volcanoes.

A male McCown's Longspur posed stunningly just a couple of yards away in Colorado's Pawnee National Grassland, a place I returned to many times. There, a helpful staff member once sent me on a long, roundabout route along dirt roads to a spot in the same ZIP code as the middle of nowhere, and sure enough, there was a Mountain Plover—long sought, finally found.

Other helpful people: a rancher in Nebraska, hearing that I'd never seen a Sharp-tailed Grouse, told me to get into his Suburban, took off

BHL

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CLIFF BEITTEL

*It was easy to set up scopes in the prairies of western Minnesota to view the Marbled Godwit (above) and other distinctive grassland species.*

bouncing across a grassy field, and within three minutes flushed one. A local birder told me I could find Chestnut-collared Longspurs along a road on the Nebraska-Wyoming state line; McCown's were common there, too. I later learned the road was slightly famous in the birding world, though admittedly not in the same league as the rest area outside Patagonia, Arizona.

Generally speaking I hate roadside birding and won't do it if there's more than minimal traffic and noise. Find me a parking lot and show me a trail that bans anything with wheels, because I'd rather see common birds in peace and quiet than scan for a rarity with trucks zooming by eight feet away.

In the wide-open spaces of the American plains, though, a mile on foot quite often gets you to a place exactly like the place where you started, with the additional disincentive that whatever birds are out there saw you coming long before you saw them. Poking along in a car with the windows down is exactly the right thing to do. That's certainly the case on the infinitude of gravel roads laid out as neatly as a checkerboard throughout Great Plains wheat fields and grazing land. It's also often true on paved secondary highways, where your most likely interruption is someone stopping to ask if you've had car trouble.

Maybe my favorite example of this car-window birding came when a group of us rented two vans and set out to explore western Minnesota—yes, it's also Kansas—for a few mostly gray days one early June. For some miraculous reason, these vehicles allowed us to drive with the rear sliding doors open without subjecting us to the endless one-note samba of the door-ajar chime. Sufficiently fueled with a world-class array of junk food and snacks, we slowly cruised Fargo-land, scanning the fields and hedgerows of places such as the Agassiz National Wildlife Refuge and the prairie preserves around Felton. It was easy to bail out and set up scopes for Sandhill Cranes, Marbled Godwits, Upland Sandpipers, Grasshopper Sparrows, and Bobolinks.

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I WEAR A LOT OF HATS IN MY JOB—
THEY ALL JUST HAPPEN TO SAY "NIKON."

Long-eared owls consume a great deal of my life as a researcher and field biologist. This afternoon however, my thoughts are not as a scientist, but a birder. Scanning just under the treetop-canopy with our Nikons, we look for roosting sites and motionless owls in the tricky environment of heavy shadows mixed with midday light. It's a great day—we capture two—and then my researcher cap is on again and the work begins. Banding, measuring and examining these magnificent birds sometimes requires quick thinking—my Premier LX$_L$ has been known to double as a field microscope when used in reverse to examine pellet skulls and feather structure. I've admired Nikon for years, and knowing Nikon's commitment to research and conservation, I'm extremely proud to stand behind this company.

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CLIFF BEITTEL (3)

*This abandoned farmhouse (above) near North Dakota's Lostwood National Wildlife Refuge is a graphic reminder that the number of people in the area is steadily declining. Below, a Baird's Sparrow sings in the shrubbery.*

Our trip led us westward to North Dakota's Lostwood National Wildlife Refuge, one of the most beautiful Great Plains landscapes I've ever seen. Here, endless green waves of shortgrass prairie hide pothole wetlands in their troughs; controlled burning and reseeding are restoring the habitat to its presettlement condition.

I'd visited Lostwood a few years earlier, looking for my first Baird's Sparrow, a scarce species that has lost most of its plains habitat to cropland and invasive exotic vegetation. On the advice of a refuge biologist, I drove around listening for a song like the famous four knocks of fate at the start of Beethoven's Fifth Symphony. Sure enough, I soon found a bird perched atop a low shrub singing *dit-dit-dit-deeeee.* The effect was less darkly ominous than bouncily cheerful; in any case, it was music to my ears. This fellow was so cooperative that he let me approach with binoculars, go back to the car for my scope (scaring up a Sharp-tailed Grouse), and return to watch for another couple of minutes.

It was a different story when I revisited Lostwood with our group to look for Baird's again. On an overcast day with the wind whipping around our ears, we stood atop a rise listening to one sing just 30 yards or so in front of us—but even with eight pairs of eyes we couldn't locate the little ventriloquist, who sang only at maddeningly long intervals. This went on long enough that people began making their own noises about giving up. Finally, somebody spotted a bit of movement in the low bushes and my friends all got their lifer Baird's.

Elsewhere on the refuge a pair of Ferruginous Hawks were raising young in one of the few good-sized trees in the vicinity. Piping Plovers nested alongside a small lake where Eared Grebes swam, while a Sprague's Pipit performed its song flight high overhead, barely more than a dot in the sky. Le Conte's and Grasshopper sparrows were much easier to find than Baird's. Lostwood may not be as famous as refuges such as Santa Ana, "Ding" Darling, or Bosque del Apache, but an early-summer

*The Sprague's Pipit (above) is known for the spectacular aerial display performed by territorial males. The birds fly high in the air, singing constantly.*

visit here should be in every birder's travel plans.

Lostwood packs a lot of the essence of the Great Plains into its 41 square miles, but it's dwarfed by my other regional favorite landscape: the Sandhills of western Nebraska. Covering 19,000 square miles, this area comprises the most extensive sand dunes in the Western Hemisphere. You won't find a barren American Sahara here, because the dune-hills receive just enough rain to support shortgrass prairie (thinly, though—you can see the sand underneath like scalp through a balding head of hair).

Nebraska Highway 2 through the Sandhills has made several lists of the country's most scenic roads, which might shock the 19th-century explorer who wrote that the area presented "the aspect of hopeless and irreclaimable sterility." This is cattle country today, but the grazing is sparse enough that ranches are huge. Sandhills land was allocated under a variant of the Homestead Act allowing settlers 640 acres instead of the usual 160, and towns and houses are far, far apart. Highway 61 running north from Hyannis surely must rank among the loneliest roads in the United States. A couple of national wildlife refuges—Crescent Lake and Valentine—protect parts of the Sandhills, but otherwise there's very little public access. It's car-window birding, mostly, stopping where you can to scan not just the prairie but abundant wetlands, too.

The High Plains Aquifer surfaces as more than 1,500 ponds, lakes, and marshes scattered throughout the Sandhills—the primary reason that on my first trip I was continually surprised by both the diversity and the sheer numbers of birds. Western Grebes water-walked in roadside ponds, where Eared Grebes, Black-crowned Night-Herons, several species of ducks, and Wilson's Phalaropes fed. American Avocets, Long-billed Curlews, Upland Sandpipers, Willets, and Forster's and Black terns were common. Burrowing Owls bobbed in fields near Bobolinks and Yellow-headed Blackbirds.

The special species of the Great Plains, from grouse to Sprague's Pipit to sparrows, are mostly as modest and unglamorous as the land itself. Consider that the patch on a Chestnut-collared Longspur's neck rates as a color highlight. But who doesn't appreciate these shy prairie birds in their shades of brown? Who doesn't especially enjoy the moments when they at last grant us a good look? The dancing prairie-chicken, the Upland Sandpiper on the fencepost, and the Baird's Sparrow mounting a dwarf shrub to sing his microsymphony, celebrating the fleeting season when the grasses green up and the relentless wind loses its winter bite.... He's calling me back to Kansas, wherever it may be. ■

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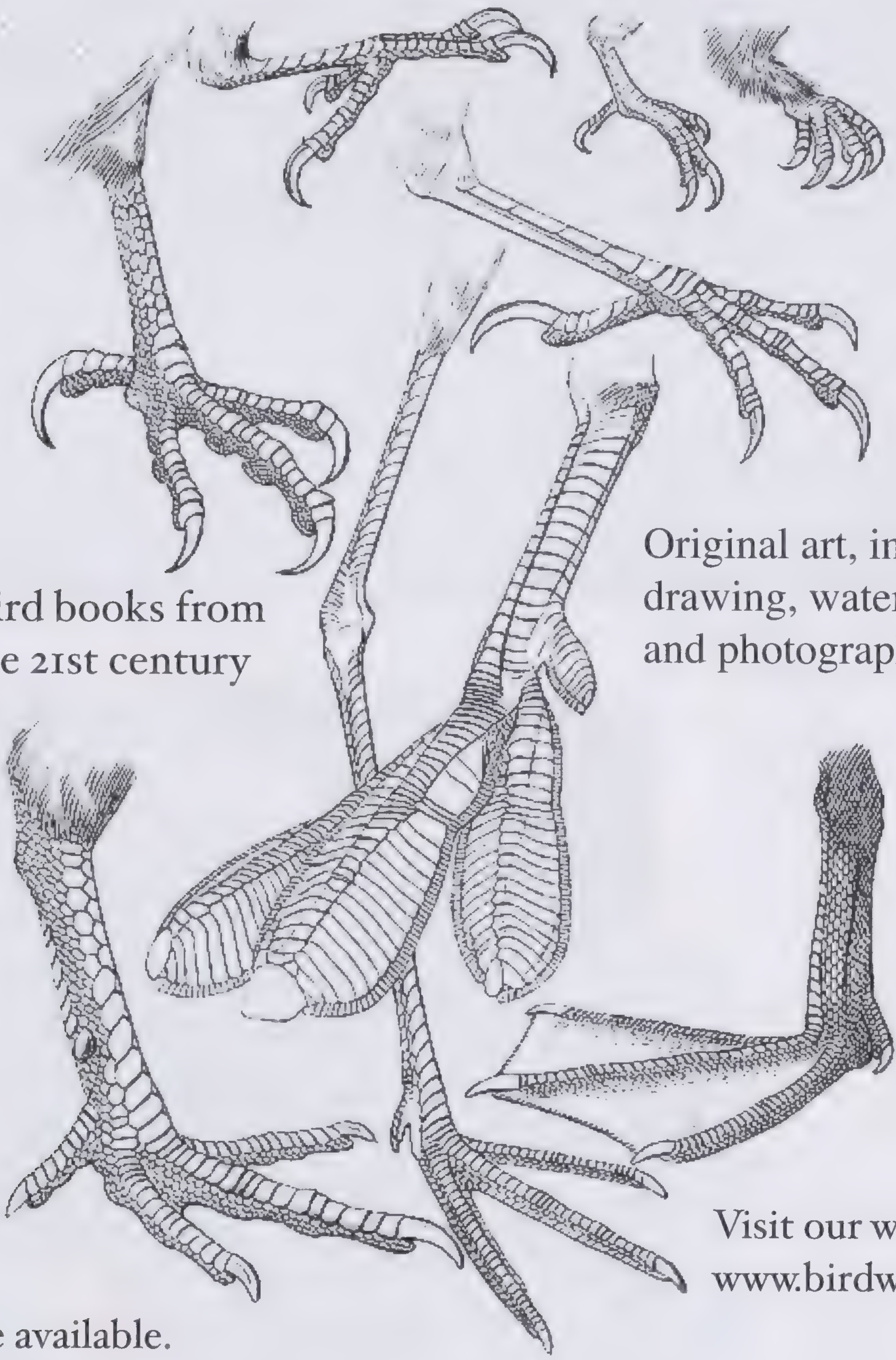

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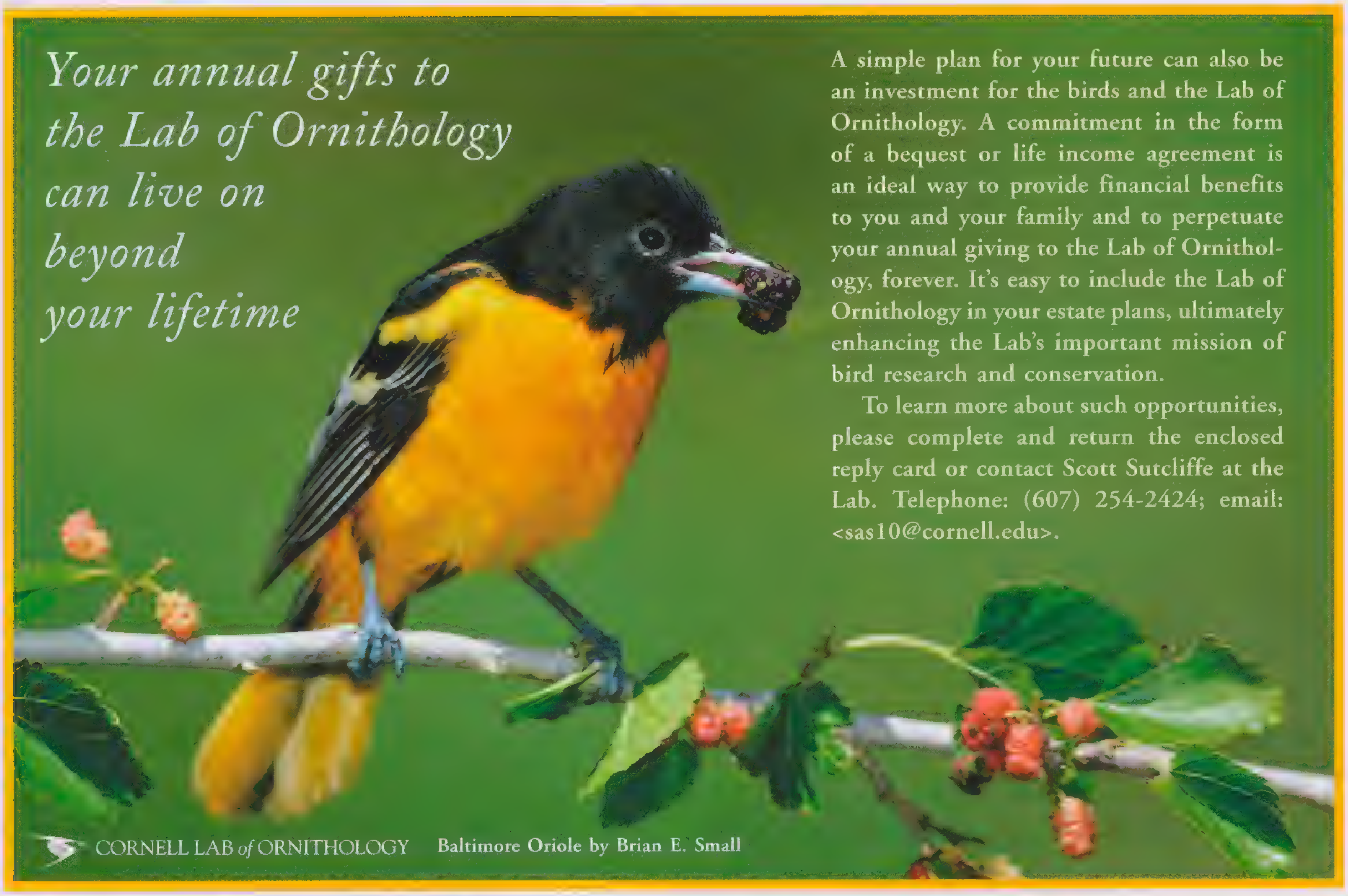

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Baltimore Oriole by Brian E. Small

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### The Catbird Seat

# BROWSING THROUGH THE PAST

*by Pete Dunne*

The small natural history section of Ye Olde Bookstore and Antiquity Shoppe is poorly lit, and it takes several minutes before the two elderly browsers recognize each other.

"Steve?"

"Michael!"

"It's been a long time."

"Years. Decades."

A short period of silence ensues as the two former field-guide authors try to figure out how to approach the embarrassing fact of their presence in the bookstore, but both choose to avoid it.

"Been doing any birding?"

"Yes. I birded the Rio Napo in Peru, the Seychelles, and the Sokoke Forest last night."

"Wow. Must have cost a fortune!"

"I was using up frequent viewer minutes. Use 'em or lose 'em."

"Know what you mean. Viddy anything good?"

"Yeah, finally got Ochre-striped Antpitta. Number 9,987. Great look. Three-camera triangulation. I'll probably use the image on my holiday cards this year. And while I was out of the room, wouldn't you know it that a Black-necked Red Cotinga came out and perched in plain view. I'd programmed it in as a 'search for.' But I got it as a 'replay.'"

"You know you can count that now in category A. They changed the rules."

"I know. But I still like to see them in real time. Like everybody used to."

"Yeah. Back in the stone knives and bearskin age you mean."

They both laugh. It sounds forced.

"Yeah," Steve adds, to fill the silence when the laughter ends. "Back when people actually had to identify the birds they found."

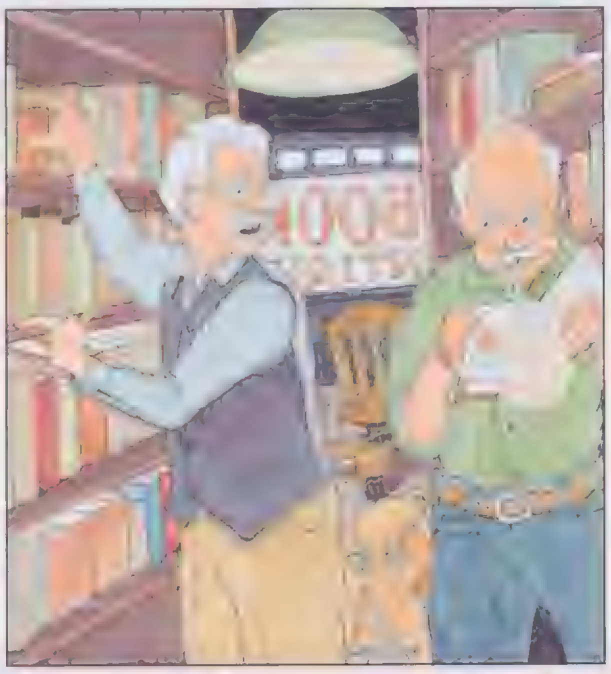
They both laugh again, but it sounds even more forced than before.

"Lost art," Michael amends.

"Like adjusting a carburetor."

"Or changing the ribbon on a typwriter."

"Or balancing a checkbook."



"Or maintaining a life list."

"Well, bird identification might be less challenging now, but the increased accuracy and the ability to bird anywhere, anytime, more than compensates."

"No question."

Another silence.

"Remember when people had to find birds themselves and physically digiscope their sightings, download the images, and wash them through an identification program at home?"

"By the way, I always liked your program."

"I liked yours, too."

Another silence.

"Yeah, and before that, when you actually had to look at a bird and try to see field marks before it flew, then come up with an identification in the field using..."

The unspoken word was "book."

"Hard to believe."

"Amazing how things have... changed."

Another silence.

"So, what brings you to New York?"

"Uhhh. Well, you won't believe this, but the Museum and Historical Society are hosting an old-fashioned ramble in Central Park. Thought it might be fun. Quaint."

"No kidding? They still do that?"

"Once a year."

"With binoculars and everything?"

"Yep. If they can find 'em. Birding vests. Baseball caps. Running shoes. Just like the olden days."

"Field guides?"

Silence.

"Probably not. Haven't seen one in years. Satellite-linked sound wands and optical scanners most likely."

"Well, what do you know? People still go searching for birds. And outside."

"Once a year. It's kind of a reenactment, like Washington crossing the Delaware."

Another silence.

"So, what brings you in here?"

"Just browsing."

"Me, too."

"Sure is musty in here."

"Must be all the books." ■

ILLUSTRATION BY JEFF SIPPLE

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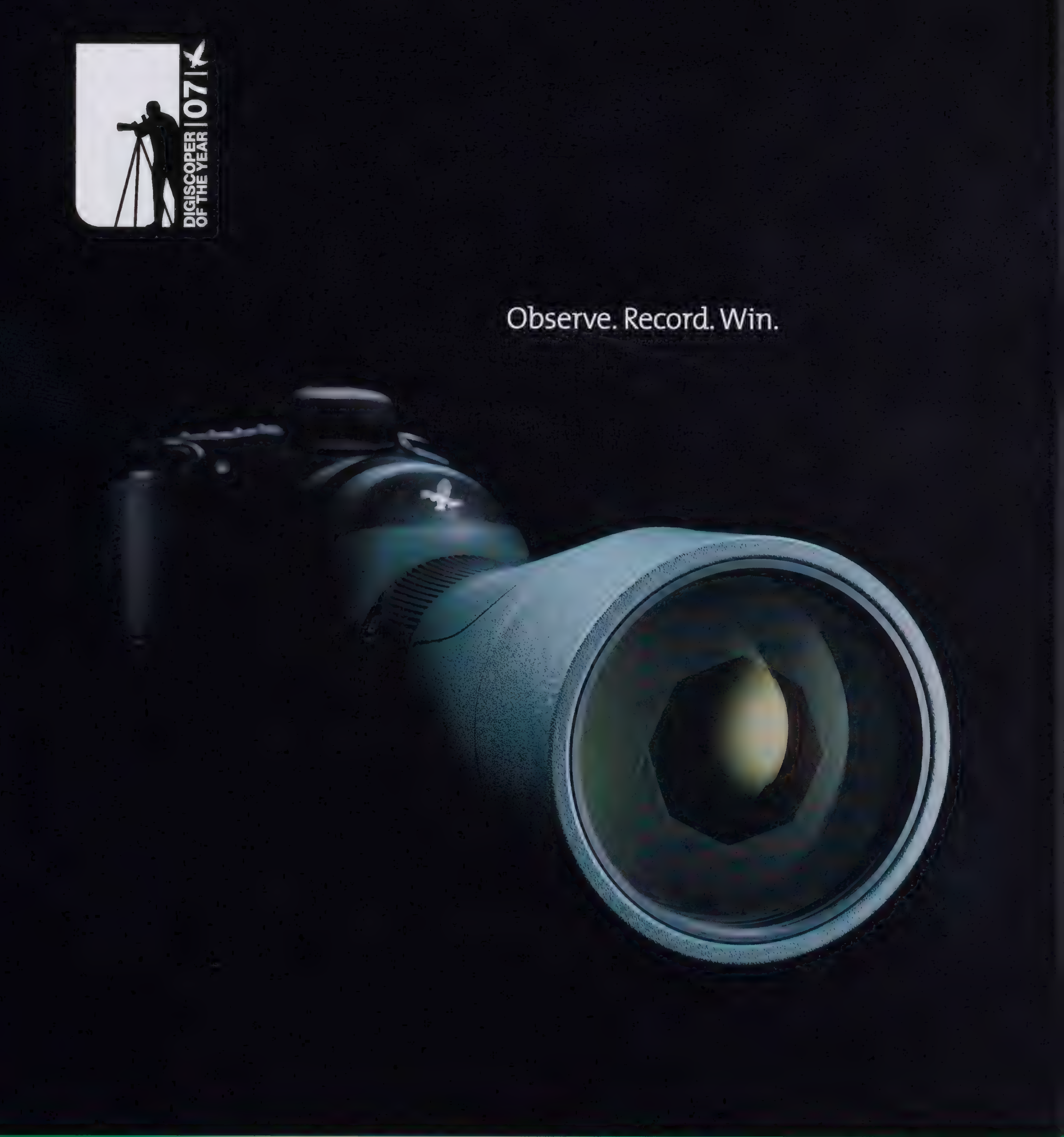

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# LIVING BIRD

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## GREETINGS FROM SAPSUCKER WOODS

We are celebrating an anniversary at *Living Bird.* It was exactly 20 years ago in 1987 that Pete Dunne wrote his first installment of The Catbird Seat for this magazine. This may well be the longest anyone has ever continuously written a single column for a birding magazine—or not. I'm sure if I make that claim, I'll quickly be inundated with letters and emails telling me I'm wrong. In any case, it's a very long time.

What can you say about Pete Dunne? For one thing, he founded New Jersey's famed World Series of Birding, which—since its inaugural run in 1984—has garned some $8 million in pledges for conservation groups. For this, we at the Lab are eternally grateful—especially this year when our Sapsuckers won the event (see page 5).

This reminds me of an incident many years ago when I was captain of the Sapsuckers. It was shortly past midnight in the middle of a torrential downpour, and we were slogging down a muddy, slippery path to a marsh, hoping to find a bittern. Several forlorn figures sloshed past us in the dark—the dispirited hulks of Big Day birders. Most of them passed in silence—except Pete, who commented: "It doesn't get any better than this." And everyone laughed.

That's what I like about Pete. He's funny. But he's also smart and insightful, and he doesn't mind saying what's on his mind. Pete understands the birding life better than anyone. He is our cracker-barrel philosopher and our stand-up comic. And he has probably done more than any living American to promote the idea that bird watching is a fun activity that anyone can *and should* enjoy. I hope he continues to write about birding for many years to come.

*Tim Gallagher*
*Editor-in-Chief*

**Cover:** The beauty and elegance of wading birds are legendary, but this portrait of a Reddish Egret preening itself in the soft morning light, casting a vivid reflection in the still water, is particularly stunning. Photograph by Cliff Beittel.

**Right:** An adult male Greater Sage-Grouse struts on a lek in western Wyoming, the vapor of his breath hanging in the chill morning air. For countless thousands of years, these magnificent birds have performed their elaborate courtship displays at sites across the American West, but they now face imminent dangers. (See article on page 10.) Photograph by Neil Losin.

**Back cover:** The Scissor-tailed Flycatcher is a familiar and spectacular sight in the open country of Texas and other south-central states. Photograph by Gerrit Vyn.

# LIVING BIRD
SUMMER 2007 VOLUME 26 NUMBER 3

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Cornell University

# Letters

## FUTURE VISIONS

I read with great amusement and sadness The Catbird Seat column ("Browsing in the Past") by Pete Dunne in the Spring 2007 issue. As is well known, "the more things change, the more they stay the same." I am particularly reminded of a similar article published probably 30 years ago in the rock climber's magazine, *Summit.* In that story a rock climber somehow wakes up many years hence and finds how much his beloved sport has changed. With a vision analogous to Pete Dunne's, he finds that climbers are all now excellent gymnasts first, preoccupied with great feats of skill and derring-do. They have even built an elevator inside the great rock face of El Capitan in Yosemite National Park with exits onto the face, to avoid the long boring parts of the climb. How many of us are still trying to rid ourselves of as much "nature" as possible?

*William Adams*
*Silver Spring, Maryland*

## KILHAM THERAPY

I enjoy all of your issues, but I particularly feel the need to respond to Jack Connor's piece, "Kilham Therapy" (In the Field, Spring 2007). What an interesting and refreshing article! I love looking at things through "new eyes," and this article certainly gave me new vision. I have a question, though: if we study our common woodpeckers and their foraging habits, we might notice that sometimes they "peck" on trees not for food but for the sheer pleasure of making a noise. Some people might think that they are, in fact, drumming up a meal. But after many years of observing this behavior, I think it has a different meaning. It seems to be intentional drumming, as if to define a territory or seek out another bird. Is this possible? Just this last weekend I observed a Pileated Woodpecker on a hollow beech tree, high on a dead trunk, drumming loudly like a drummer in a Tahitian band. The sound echoed over water and woods and was soon returned by another faraway drummer. I know pileateds love to drum on dead logs on the ground, and I might believe that it is just a characteristic of this bird. But when I lived in Arizona, I heard a Gila Woodpecker drumming on a neighbor's metal basketball backboard! Perhaps all the woodpeckers are doing is driving their insect meal out by making such a racket or vibration, but it seems there is more to it than this.

*Susan Ilka*
*Grand Rapids, Michigan*

*Your observations and analysis of woodpecker drumming is correct. They do frequently tap on trees and other sounding boards in spring—not for food but instead to declare their territories and attract mates. My students sometimes ask me, "What insects do woodpeckers think they can find in our rain gutter?" "None" is the answer. They like the gutter or flagpole or resonant cedar shake because they want to make a lot of noise. It's the woodpecker equivalent of songbird song—and it seems that in many (most?) species of woodpeckers both sexes participate. We had a female Downy Woodpecker tapping on a dead tree in our yard first thing every morning this spring for several weeks.*

*There's a good explanatory section (written by J. Michael Reed) about drumming in* The Sibley Guide to Bird Life and Behavior, *pages 379–80.*

*Good observing, Susan. I'm sure that Kilham would approve. Keep at it!*

*Jack Connor*
*Contributing Editor*

We welcome letters from readers. Write to The Editors, *Living Bird,* 159 Sapsucker Woods Road, Ithaca, New York 14850, or send email to <livingbird@cornell.edu>.

## Victory Is Sweet

EDWIN I STEARNS AWARD

KEN ROSENBERG

*The Sapsuckers—(left to right) Chris Wood, Steve Kelling, Ken Rosenberg, John Fitzpatrick, and Brian Sullivan—took top honors in the 2007 World Series of Birding.*

Well, the mighty Sapsuckers did it again. For the second year in a row the Lab of Ornithology's ace birding team came home victorious in New Jersey's famed World Series of Birding, identifying 230 species by sight or sound during a madcap 24-hour dash across the state on May 12. That's a new team record and was three species ahead of the next-highest-scoring teams. It's also just one species short of the all-time record for the event.

The Sapsuckers brought in more than $160,000 in pledges from Lab members and friends, all earmarked for conservation projects.

Since 1984, when the Lab of Ornithology first began competing in the event, our teams have raised more than $2 million for bird conservation.

This year marked a first for the Lab as we launched our first student team, the Redheads: Ben Winger, Scott Haber, Glenn Seeholzer, Jay McGowan, and Shawn Billerman. The team members, all Cornell students, competed in the "limited geographic region" division, birding exclusively in Cape May County. The Redheads turned in an impressive list of 174 species, second only to a veteran Maryland team that identified 184 species.

All of the funds raised will go directly into bird conservation programs and undergraduate research in ornithology, thanks to team sponsor Swarovski Optik, which underwrites the Lab's Big Day expenses.

The Sapsuckers got a great start at the stroke of midnight. "It was phenomenal," said cocaptain Ken Rosenberg. "Right away we got Sora, Virginia Rail, King Rail, Eastern Screech-Owl, Swainson's Thrush, Black-billed Cuckoo, and Yellow-billed Cuckoo." Mishaps along the way included an incident when the team accidentally tripped the van's panic alarm while two-dozen other teams were listening for Vesper Sparrow. The Sapsuckers' last bird of the day was a Nelson's Sharp-tailed Sparrow at 8:22 P.M., a new bird in the team's history.

STAN HONDA

*Big Day birding at its best—in the Sapsucker-mobile, en route to another World Series victory.*

For the Redheads, the day started with a Marsh Wren and ended with a Royal Tern spotted by sophomore Shawn Billerman at 7:15 P.M. Captain Ben Winger says, "We had a great day and set a high mark for future Redheads to aspire to."

On a sad note, this year's competition marked the swan song for Lab director John Fitzpatrick and director of Information Science Steve Kelling, who are retiring from the team after 12 and 14 years, respectively.

"In the end, the Big Day has taught me that the best thing about life is that if we can keep our eyes and ears open, we never, ever stop learning," says Fitzpatrick. "I'll remember this Big Day vividly all my life. It was an amazing day of birding, camaraderie, and competition."

Kelling concurs. "The experience of birding with these guys has just been spectacular," he says.

Read more about the teams' experiences in the World Series of Birding on the Lab's web site at <http://www.birds.cornell.edu/wsb/2007-highlights>. Thanks for your continued support.

*—Pat Leonard*

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Photo by Marlene Jay Cashen

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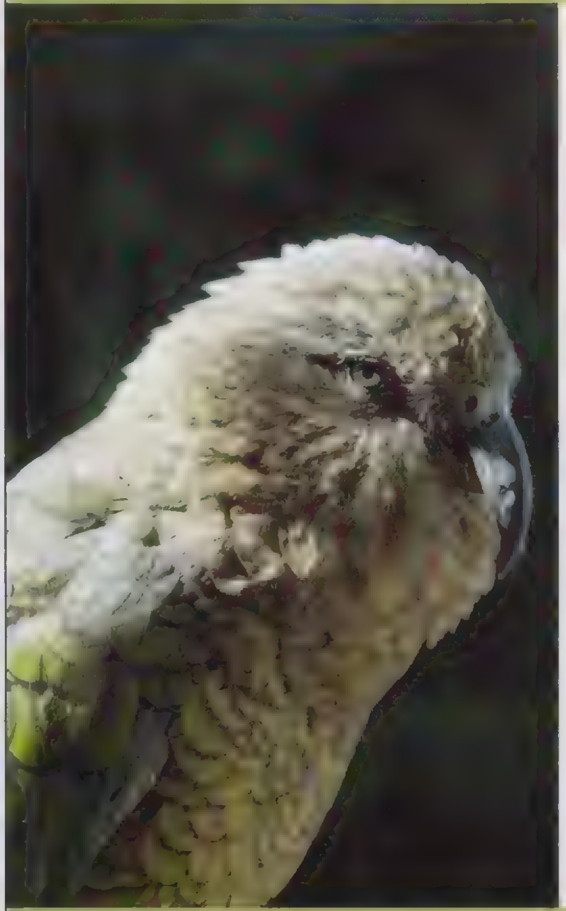

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*Spotlight*

# RETURN OF THE NATIVES

*By David S. Wilcove*

## *Costa Rica's Corcovado National Park shows how fast wildlife can recover in protected areas*

Across the globe, the amount of land that has been placed in some form of protective status—parks, forest reserves, wildlife sanctuaries, and the like—has increased by more than 1,500 percent over the past century. These protected places may well be the single most important achievement of the environmental movement. They are a refuge for countless species of plants and animals that might otherwise perish in a world increasingly dominated by agricultural lands, cities, and sprawl.

But as anyone involved in international conservation will quickly point out, the fact that an area has been declared a park does not by itself mean that the land and its wildlife have been protected. Poaching, illegal logging and mining, and unauthorized settlements are rampant in many of the world's protected areas, especially in developing countries. A study by Michigan State University ecologist Jianguo Liu, for example, found that the rate of forest clearing in China's Wolong Nature Reserve, home to roughly 10 percent of the world's giant pandas, skyrocketed *after* the reserve was established, due largely to an expanding human population in and around the reserve. Yale University ecologist Lisa Curran documented the loss of over half of the protected lowland forests of Indonesian Borneo between 1985 and 2001, due largely to illegal logging. The problem of "paper parks"—nominally protected areas that lack true protection—is a major concern of conservationists.

But consider the flip side of this issue: Once an area receives adequate protection—once the poaching and illegal logging and other harmful activities have been stopped—how quickly can the wildlife recover? A recent trip to Costa Rica gives me some hope that the answer to this question, at least for some species in some places, may be: "Faster than you think." If so, we may yet be able to turn those paper parks into proper arks.

In January 1981, I was a first-year graduate student, the lowest of the low in the academic pecking order. The one real perk afforded first-years at my university was the opportunity to take a tropical ecology course, held each year in a different location in the American tropics. That particular year, our destination was Corcovado National Park, located on the Osa Peninsula in the southwestern corner of Costa Rica. Corcovado had the reputation of being one of the last truly wild areas in Central America, a place where spider monkeys swung from the trees, jaguars and Baird's tapirs patrolled the forest floor at night, and a lucky bird watcher could still see Scarlet Macaws and Great Curassows. Poaching and deforestation may have reduced or eliminated these species from most of Central America, but in Corcovado, at least, they still survived. Nonetheless, the future of that park was hardly rosy. Park administrators were engaged in a nasty dispute with gold miners and other settlers who demanded continued access to the park and its resources.

In San José, we boarded what seemed like a ridiculously small plane and headed west until we reached the Pacific Ocean, whereupon the pilot turned south and followed the coast. Until this point, we had been flying over a mix of farmland, pastureland, and towns, with only scattered patches of forest. Now, the landscape grew distinctly wilder, with fewer and fewer farms and more forest. Spotting a small, grassy airstrip, the pilot banked the plane and brought us to a safe, bumpy landing in the heart of Corcovado National Park. Gathering up our gear, we bade him good-bye, introduced ourselves to the park guards who were manning the simple ranger station, and headed out in search of a suitable campsite.

The six of us spent two full weeks in the park, reveling in its biodiversity. Every morning, raucous groups of Scarlet Macaws passed overhead, screeching loudly as they set out in search of food. And every afternoon, they returned, heading for their roosts somewhere in the forest. The curassows, however, were less cooperative. Despite keen searching by all six of us, only one member of our group succeeded in spotting one. Tapirs eluded us completely, although a few students were lucky enough to find some tracks.

Now fast-forward 26 years to January 2007, when I found myself leading a group of first-year graduate students on a similar tropical ecology course to Costa Rica. Our home base was the newly created Osa Biodiversity Center, run by Trond Larsen, one of the world's top tropical ecologists. The Center is located to the east of Corcovado in an area of primary forest and regenerating second-growth. Trond had recommended that we include in our itinerary a short visit to Corcovado—to the very spot I had visited as a graduate student. "I hear it's gotten a lot better for wildlife since the last time you were there," he told me. This time, instead of flying in, we drove to the end of the road and hiked along the beach for

12 miles until we came to the same grassy airstrip I had encountered in 1981.

The airstrip seemed unchanged, but the dilapidated ranger station had been replaced by a set of new buildings, featuring administrative offices, dormitories, and a dining hall. In contrast to my previous trip, when we were the only visitors, the park now hosted a substantial number of tourists and researchers.

I began to sense that things had indeed gotten better when, on our first night, we bumped into a mother tapir and her calf munching leaves along the edge of the airstrip. The next morning, in six hours of bird watching, I spotted no fewer than seven curassows (versus the single bird that we found in the course of two weeks of field work in 1981). The spider monkeys were easy to find, and Scarlet Macaws still passed overhead every morning and afternoon, as loud as ever.

An even bigger surprise came after we left Corcovado and stopped briefly in the town of Puerto Jimenez on the east side of the Osa Peninsula. Home to a small airport and a few thousand people, Puerto Jimenez is best known as the starting point for tourists visiting the peninsula. Restaurants line the beachfront, and a blend of souvenir shops, travel agencies, and stores occupies the small "downtown." Accustomed to thinking of Scarlet Macaws as symbols of tropical wilderness, I was astounded to find whole flocks of them in the town itself, eating the seeds of the beach almond trees lining the coast, munching on ripe mangos, and flying from yard to yard. They seemed no more skittish than the grackles and Blue Jays in my backyard in New Jersey.

Eager to learn more about the Osa's biological renaissance, I spoke to Adrian Forsyth, president of the conservation organization Friends of the Osa. He attributed the increase in wildlife to two factors: diminished hunting in Corcovado and surrounding areas and the regrowth of forest in former pastures and farm fields. Up until the late 1980s, there were gold miners and settlers in and around the park; their presence created a demand for fresh meat, which, in turn, attracted market hunters, who earned a living by shooting tapirs, curassows, and other large animals.

When the Costa Rican government finally decided to take action, it instituted a buy-out program for the miners, who received financial compensation in exchange for abandoning their claims and moving out of the park. Today, Corcovado itself is free of miners, and only a few remain outside its borders. The attendant trade in wild game has dried up.

Outside the park, there are also signs of recovery. A dozen years ago, Forsyth purchased a 400-acre tract of land in the southeast corner of the peninsula. For the first few years, he saw no peccaries or curassows on his property, but he often heard the barking of hunting dogs and the sound of shotgun blasts. As Costa Rica's standard of living improved, and as more people abandoned the countryside to move into cities and towns, hunting pressure diminished and forests began to reclaim the abandoned land. Today, Forsyth hears no gunshots, and he often sees collared and white-lipped peccaries and curassows on his land. Jaguars and pumas have moved into the area as well. A recent survey conducted at the behest of Friends of the Osa documented that Scarlet Macaws have expanded their range on the peninsula, probably because the birds are no longer being shot or captured for the pet trade to the extent they were just a decade or two ago. The macaws have benefited from a growing realization on the part of the local community that the living, wild birds are a major tourist draw.

Like all ecologists with a passion for the tropics, I have had the experience of returning to a favorite site only to find the forests cleared and the wildlife gone. In the case of the Osa Peninsula, however, I came away with a renewed sense of optimism that many of our imperiled birds and mammals can rebound, if we're willing to give them a chance. ■

*Scarlet Macaws have benefited from a growing realization in the local community that the birds are a major tourist draw.*

ARTHUR MORRIS/BIRDS AS ART

*Further Information*

Visit the Friends of the Osa web site at <www.osaconservation.org>.

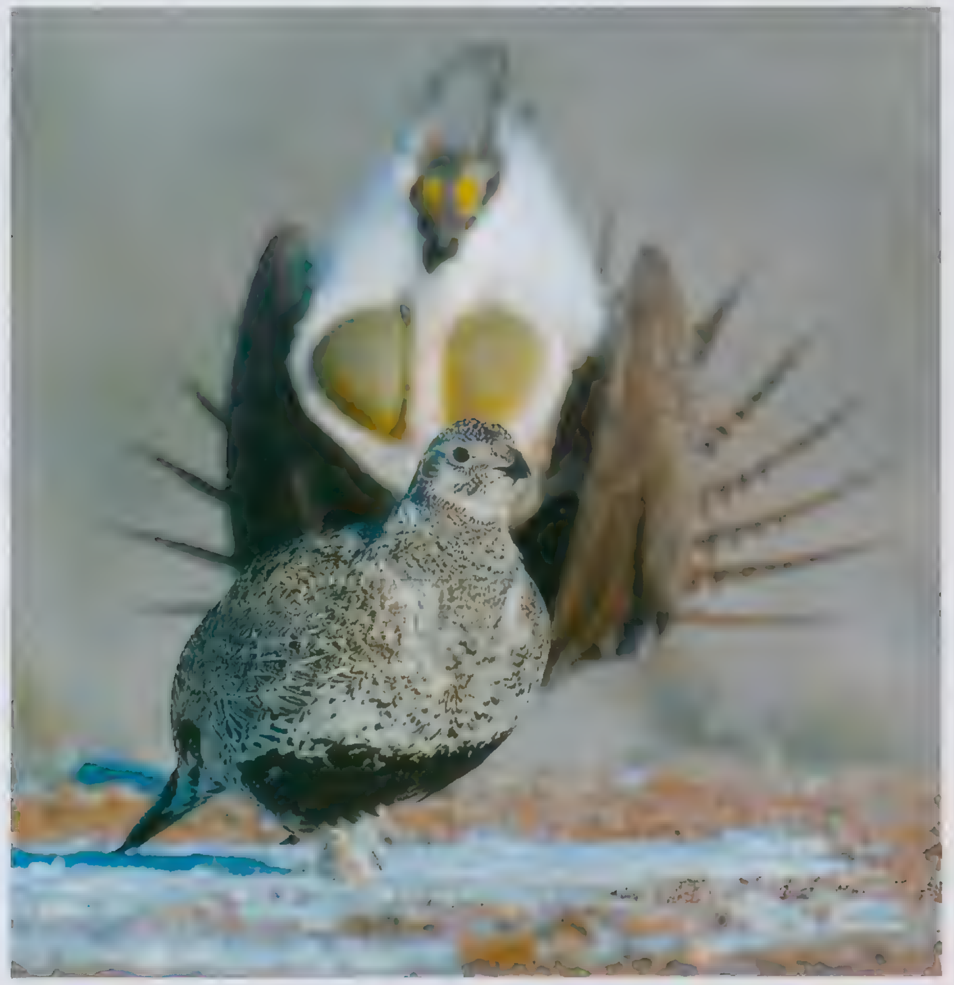
# KING OF THE WESTERN SAGE

BY NEIL LOSIN

*The life and plight of North America's largest grouse*

Two hours before sunrise, I drive over a deep-rutted dirt road through the empty sagebrush country of Wyoming. The temperature hovers around 10 degrees Fahrenheit, but for the moment I'm grateful for the cold. Once the sun rises and the mud begins to thaw, the roads will become almost unnavigable. The landscape is disorientingly uniform, the darkness heightening the feeling that I'm on a road to nowhere.

And in a sense, I am. The place where I stop is unremarkable: a small pink flag tied to a bit of sage. Nothing else suggests that this spot is different from any other for miles around. But in an hour's time, this patch of sagebrush will host one of nature's most remarkable spectacles: the courtship of the Greater Sage-Grouse. I grab my camera, binoculars, and portable blind, and walk 100 yards by headlamp. A few minutes later, everything is in the blind, and I wait.



NEIL LOSIN (2)

The black sky begins to soften, and the shapes of the landscape slowly emerge. In the foreground a grassy clearing appears, with a few smooth hills behind and the white peaks of the Wind River Range in the distance. With these first signs of the approaching dawn, sage-grouse start arriving. Unseen against the steel-gray sky, they come gliding toward the lek in groups, their wings producing a descending whine like a squadron of bombers, punctuated by helicopter-like thumping as they furiously beat them to land.

Then I hear even stranger sounds. Weird pops and whistles come from every direction, along with rhythmic grunts and the sounds of combat. Male grouse gradually materialize in the growing light—first their white neck ruffs, then their whole bizarre outlines. They are huge birds, up to eight pounds apiece. Each is outfitted with 20 spiky tail feathers held erect and fanned, two inflated vocal pouches on his chest, bare yellow "eye-combs" on his face, and a tuft of thin black feathers, or filoplumes, on the nape of his neck.

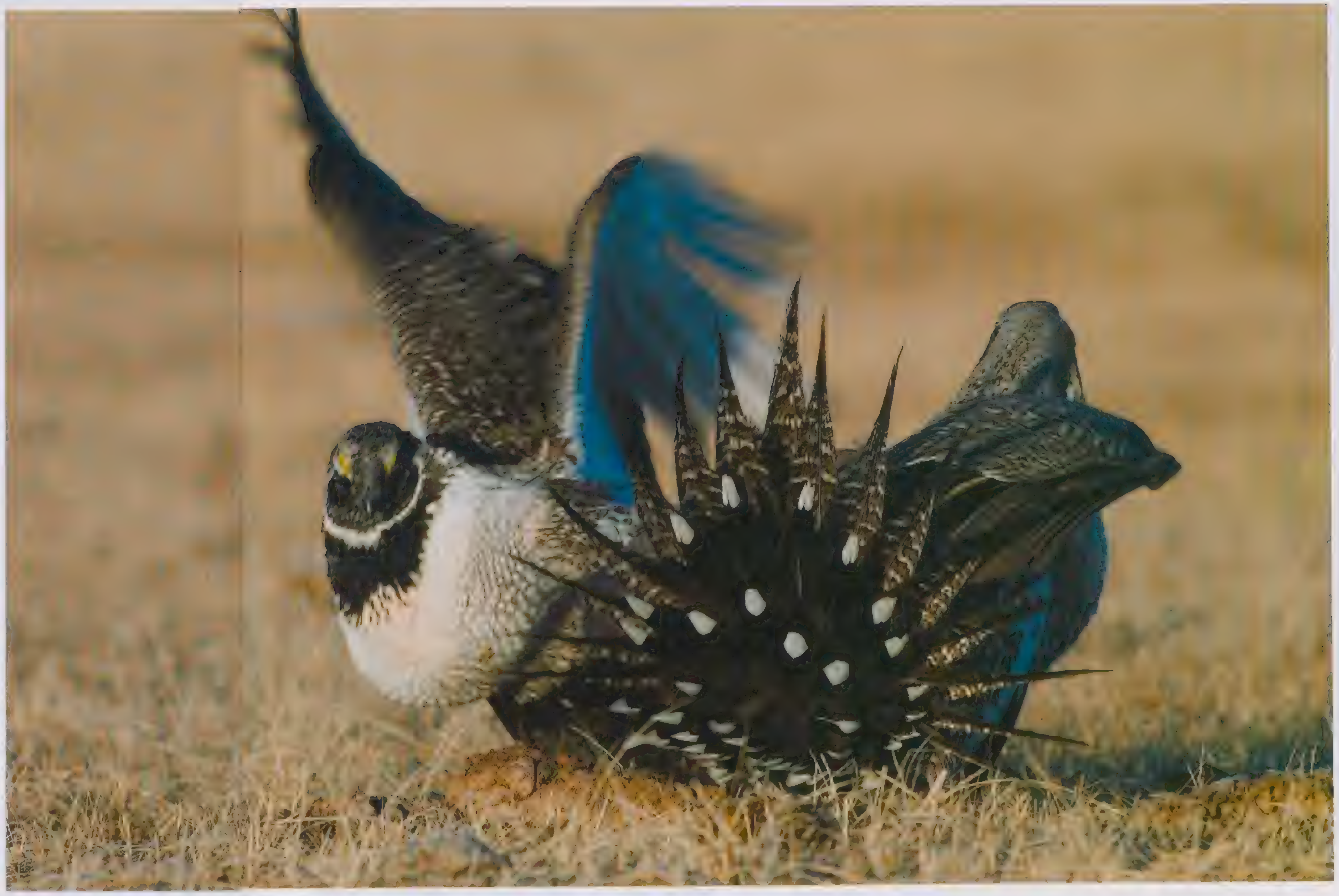
I begin to identify the sources of the peculiar noises. Males emit the pops and whistles during their elaborate "strut," their inflated chests bobbing up and down and colored vocal sacs exploding outward. Occasionally I see two males in a quite different pose, crouched side-by-side, facing opposite directions. They grunt back and forth, and when posturing and grunting won't settle their differences they resort to physical combat, pummeling each other with their powerful wings. The morning grows still lighter, and I begin to see females. About half the size of the males, they are clad inconspicuously in mottled tans and browns. Males cluster around them and strut unabashedly, vying for their attention.

By sunrise, 150 males and perhaps half as many females crowd the clearing. Each female is searching for a male to sire her chicks, and each male competes to sire as many broods as he can manage. This is the sight I came to see: a morning on Cottontail Lek.

This scene is not unique. The same sequence of events occurs every morning from late winter to mid-spring at sites throughout the American West, as it has for countless millennia.

First described by Lewis and Clark in 1805, the Greater Sage-Grouse (*Centrocercus urophasianus*) inhabits unspoiled sagebrush habitat throughout the interior West, from southern Alberta to northern New Mexico. For most of the year, sage-grouse roam this desolate land in small groups, eating sagebrush and keeping a low profile. But for a few months each year, when amorous males gather to perform their courtship rituals on traditional "leks," or strutting grounds, they become the most spectacularly visible inhabitants of this landscape.

Gail Patricelli, an assistant professor at the University of California, Davis, studies the Greater Sage-Grouse in Wyoming. I had the opportunity to help with her research in 2006.



*On the previous spread, several male sage-grouse perform their strut display on a lek. At left, a female sage-grouse feigns indifference to a male's intense strutting efforts. Two male sage-grouse (above) clash violently over a piece of prime lek real estate, lashing out at each other with their wings and feet. Scenes like these play out each morning from late winter to mid-spring at sites throughout the West.*

PHOTO ON PREVIOUS SPREAD: GARY KRAMER

Patricelli and her research team have blurred the line between basic and applied science, asking fascinating questions about bird behavior and addressing pressing concerns for sage-grouse conservation.

Biologists have had more than a passing interest in sage-grouse and their lek breeding system for decades. During a one-week peak in mating activity, female sage-grouse visit leks, choose mates, then leave and raise their broods with no help at all from males. Out of dozens of eligible bachelors on each lek, just one or two males are chosen again and again by virtually every female.

One of these successful males might mate 20 times in a morning. A male in Montana copulated 169 times during a single breeding season, while most of the males sharing his lek didn't mate at all. Much of Patricelli's research is aimed at discovering what factors determine a male's success or failure in the mating game.

*A male Greater Sage Grouse in Montana copulated 169 times during a single breeding season, while most of the males sharing his lek didn't mate at all.*

The strut is a complex ritual: males "swish" their wings against bristly breast feathers, then emit a loud "pop," followed by a "whistle" that oscillates wildly in pitch and another "pop." The simultaneous visual display makes the strut a dazzling multisensory show.

Despite all of this pomp, the nature of female preferences has remained elusive. "I think it's

NEIL LOSIN (3)

*Much of Patricelli's research is aimed at discovering what factors determine a male's success or failure in the mating game.*

*Research assistant Sarah Lazazzero uses a sound-pressure-level meter to measure the intensity of the noise produced by a gas-drilling rig near a sage-grouse lek. The mound of earth between Sarah and the rig was left over after the well pad was cleared and leveled.*

fascinating that to a human observer all but a few scruffy males look and sound identical," says Patricelli, "but to female sage-grouse, some males are clearly far preferable to others."

Previous work hinted that the amplitude, or volume, of the male's "whistle" might be important. Acoustic amplitude is notoriously difficult to measure in nature because it is affected by distance, vegetation, soil features, and the topography between the source and receiver. Patricelli has overcome this difficulty with an array of 24 microphones covering an entire lek. I helped her and postdoctoral researcher Alan Krakauer dig shallow trenches in Monument Lek and bury nearly a mile of microphone cable under the frozen earth. The arduous installation paid off: each morning of the lekking season, the array yielded about 15 gigabytes of audio data to be analyzed in the lab at the University of California, Davis.

The array lets Patricelli measure the amplitude of male vocalizations from multiple locations simultaneously and will help her test whether loud males really are the most successful. She and Krakauer are also investigating whether males prefer to display on sites of high "acoustic quality," where their vocalizations are transmitted best.

One midnight in April, when the air was still and no grouse were present, I headed to Monument Lek with Krakauer and his team to test the latter idea. We used a huge, lozenge-shaped omnidirectional speaker to broadcast controlled sounds, and we measured the sound's propagation in all directions using eight microphones. As the bizarre speaker sat on its stubby tripod legs emitting unearthly noises, I felt more like I was at the famed UFO site in Roswell, New Mexico, than in Hudson, Wyoming.

We moved the whole assembly to several males' display sites in turn. After a few hours of dragging the rig around the lek in the dark, the sage-grouse's predawn arrival was imminent and we had to pack up for the night. The data from these experiments are still being analyzed, but if male sage-grouse select display sites based on their acoustic characteristics, we will have found one more piece of the mate choice puzzle.

Sage-grouse produce some of the most directional vocalizations known among animals, meaning that they are not equally loud in all directions. Marc Dantzker and Jack Bradbury, two researchers at the Cornell Lab of Ornithology, were the first to show that the "whistle" is concentrated in two "beams" offset about 30 degrees to the left and right of a strutting male. Now, Patricelli and Krakauer suspect that males may orient themselves to direct these high-intensity sounds at females.

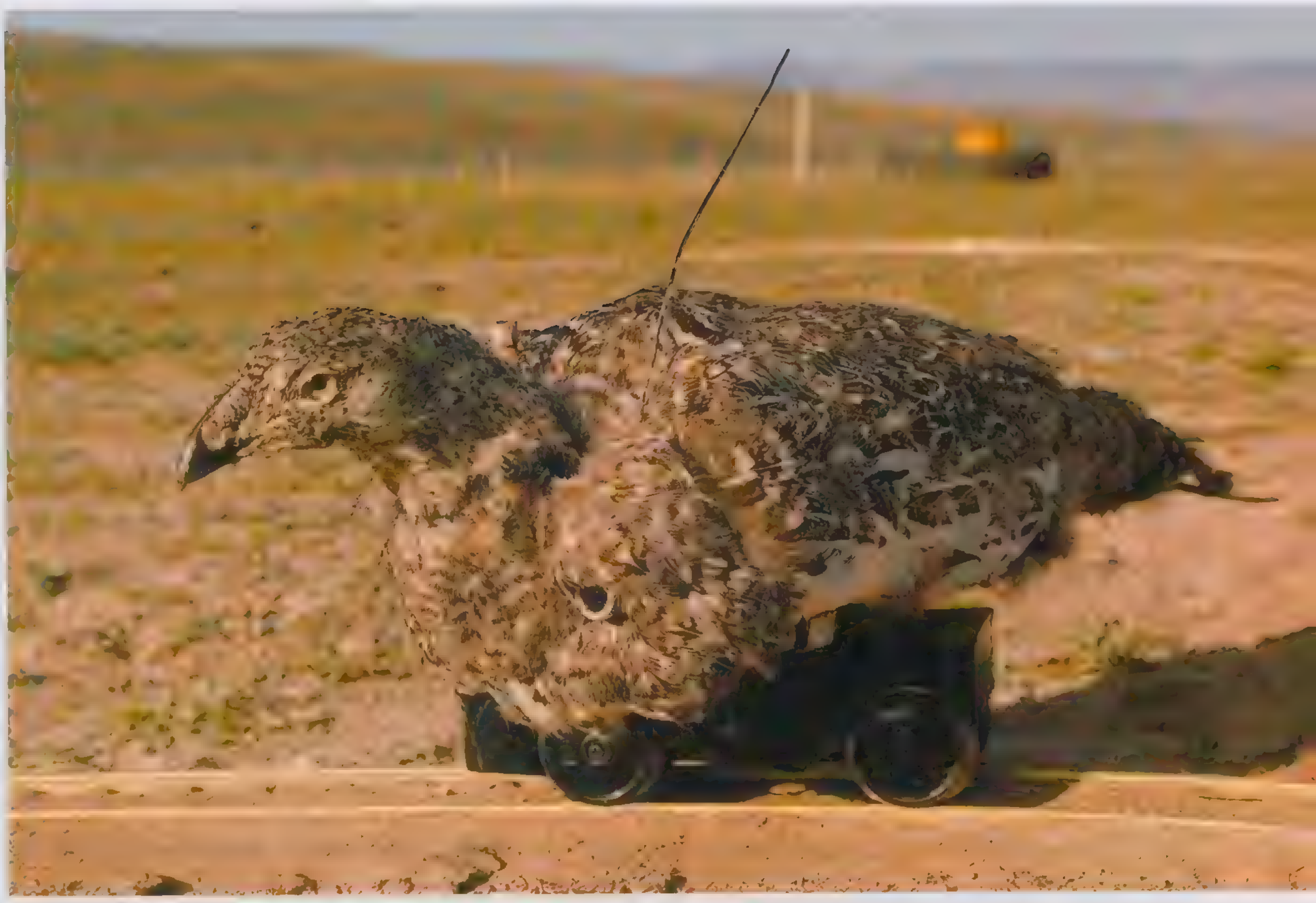
Empirically, this is a thorny problem—to understand how males use their displays, we really need to know what the female hears. And following a female around with a microphone just isn't an option. Patricelli's solution? Build a robo-female.

Patricelli is no stranger to robots. For her dissertation, she built a robotic female Satin Bowerbird to test whether males of this Australian species adjust their courtship displays based on female body language. "I found that the male's ability to respond to female signals was about equally as important in explaining his mating success as his ability to produce an intense display," Patricelli says. Males didn't just need to perform well to woo females, they needed to know when to turn on—and turn off—their charm.

The robotic female sage-grouse, or "fembot" as Patricelli calls it, travels about the lek on model railroad tracks and moves realistically, controlled remotely by a researcher in a blind. It records sound and video using an onboard microphone and camera, so we can "see" and "hear" from a female's perspective during courtship. The males are easily fooled—male sage-grouse will copulate with virtually anything that remotely resembles a female, including piles of cow dung—and they court the robot enthusiastically. Patricelli adjusts the fembot's location and body language to test whether males "aim" their displays to maximize the sounds the fembot perceives. The robot was tested in 2006, and full-scale experiments began in 2007.

Acoustic territory quality and directionality are relatively new ideas in animal behavior. "Previous researchers have had a hard time measuring all of these sources of variation," says Krakauer, "but with technology such as the microphone array and robot, we can show how important they are."

It is impossible to predict exactly what we will learn in the next few years, but we can



*Above, after a morning spent wooing unsuspecting male sage-grouse, the "fembot" rests on her model train tracks at Monument Lek. Gail Patricelli (left) kneels nearby, holding the radio-controller she uses to direct the robotic sage-grouse's movements. The fembot contains an onboard camera and microphone so that researchers can see and hear courtship from the unique perspective of a female sage-grouse.*

NEIL LOSIN (2)

*Above, a natural-gas drilling rig in western Wyoming's Green River Valley, with its wastewater settling pool. To gain a sense of perspective, the red spool on the ground in front of the rig is as tall as a man.*

*We hope that understanding the impact of noise will be the key to slowing the decline of sage-grouse in the Upper Green River Valley.*

already tell that it will be novel and exciting. And now that Patricelli has developed these technologies for her sage-grouse research, other scientists may follow her lead in their own studies of behavior in birds and other animals.

Most of Patricelli's research is conducted near Hudson, Wyoming, on the eastern flank of the spectacular Wind River Range. Here the grouse are plentiful, and leks are packed with males strutting and females shopping. Elsewhere, however, sagebrush habitats—and sage-grouse—are under threat.

The sagebrush ecosystem, which historically covered 155 million acres of the West, is now ranked third in the American Bird Conservancy's "20 Most Threatened Bird Habitats in the United States." More than 70 percent of what remains is publicly owned, yet only 3 percent is protected. Sage-grouse have already declined 45 to 80 percent from historical levels, and the decline continues as sagebrush habitat is destroyed and degraded.

I spent several weeks working in the Upper Green River Valley near Pinedale, Wyoming. Here, to the west of the Wind River Range, the sagebrush landscape covers some of the richest natural-gas reserves on the continent, and rapid development of these energy resources threatens the sagebrush community.

Early one morning, I set out with my assistant, Sarah Lazazzero, to find the Speedway Lek. I could see distant signs of energy development west of Highway 191, but I marveled at the unbroken sagebrush to the east. We passed a small hand-painted sign that read "Entering Sand Springs Forest," followed by three tiny, bedraggled-looking trees clinging to existence on the roadside, the only vegetation that dared to brave the wind and cold more than a few feet above the ground. Fifty yards on, another sign wryly noted: "Leaving Sand Springs Forest."

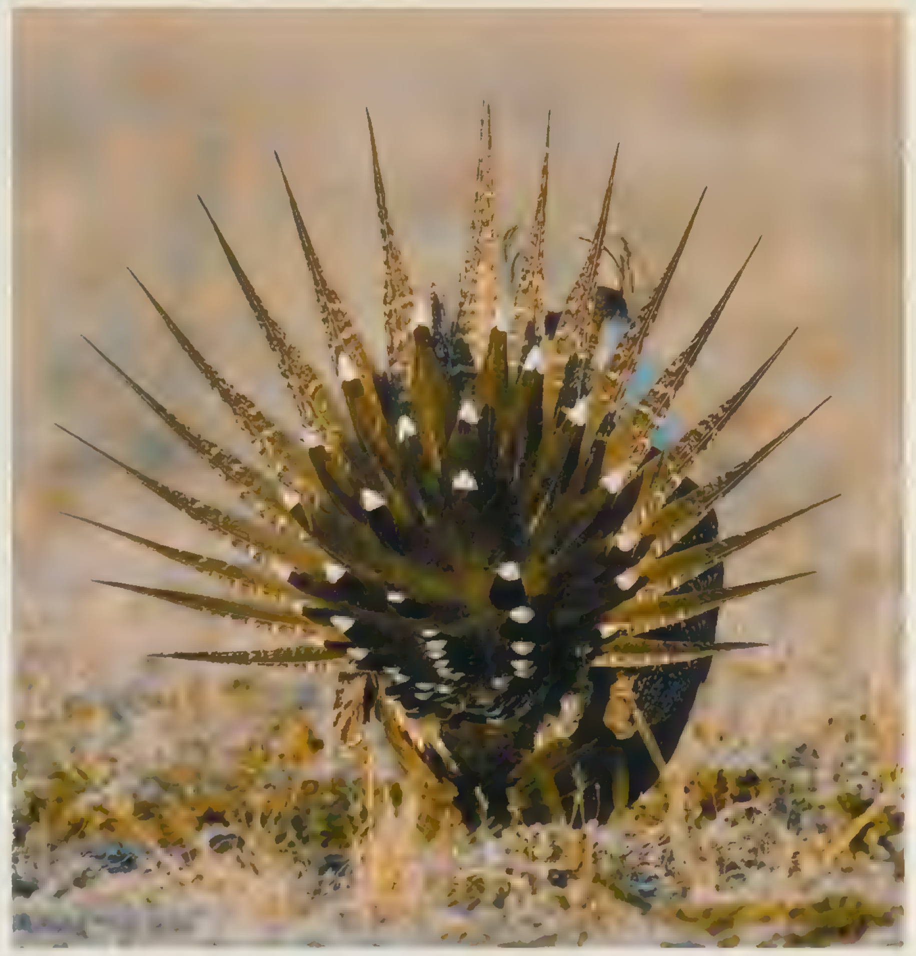
Finding the Speedway was not difficult; minutes after leaving the highway, we found ourselves surrounded by sage-grouse. Males strutted and brawled, females milled about on the snow, and several birds wandered across the road just feet from our truck. The Speedway was as impressive a lek as any I had visited—we made a quick count of more than 120 males and dozens of females.

The next morning, we consulted our maps to find a lek called Big Fred, which had also been populous in recent years. To reach Big Fred, we drove through the Warbonnet gas fields, where the once-empty sagebrush country was pockmarked with natural gas wells and reticulated with roads. The lek was an easy walk from the bare dirt "pad" surrounding an active gas well. But while the Speedway was teeming with sage-grouse just a few miles away, Big Fred was almost barren. We scanned the lek repeatedly, but kept reaching the same count: six males. And in several visits, we never saw a female.

Leks all over the Upper Green River Valley have suffered the fate of Big Fred. Matt Holloran of the University of Wyoming recently finished a monumental study of sage-grouse populations in the area. He found that male attendance was plummeting at leks close to roads, gas wells, and drilling rigs, even when energy companies obeyed the Bureau of Land Management (BLM) regulations intended to protect the sage-grouse. The number of males attending the most heavily impacted leks dropped by almost 50 percent per year during Holloran's seven-year study. The exploration of the Upper Green River Valley's vast gas reserves was having serious consequences for sage-grouse.

When Patricelli learned about Holloran's research, she had already decided to study sage-grouse courtship behavior in Wyoming.

### WHO'S WHO?



*At right, a male sage-grouse struts his stuff on a lek. Researchers use the pattern of white on the strutting birds' undertail coverts to identify the individual grouse.*

Unlike female sage-grouse, human researchers have a hard time detecting any differences among males. But we have to know who mates and who doesn't. So how do we tell which male is which?

Past research has shown that you can tell one male from another by the pattern of white undertail covert tips the bird reveals when he is strutting. Like human fingerprints, these "buttprints," as sage-grouse researchers call them, are individually diagnostic.

On a typical morning at Monument Lek, three assistants observe the birds from blinds, identifying and noting the location of each male every few minutes. Meanwhile, high-definition digital video cameras record activity across the whole lek. Comparing the video with the observational records, we can locate any male and follow his activity for an entire morning.

For even greater detail, the microphone array is also used as an "acoustic localization system." When a male struts, his vocalizations reach each microphone on the lek at a slightly different time; it takes longer for the sound to travel to more distant microphones. We can use a computer to triangulate a male's exact position when he performs each strut display. These data help us map the extent of his territory and discover whether he prefers certain display sites over others.

BHL

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But when his results were published, she realized that she could also help sage-grouse conservation efforts.

One puzzling trend that emerged from Holloran's data was that leks to the east of drilling rigs seemed to suffer a greater impact than those to the west. Holloran knew that prevailing winds near Pinedale blow from the west, and that sound propagates better with the wind than against it. He reasoned that noise might cause grouse to abandon their leks.

Testing this idea, however, would be tricky. After all, drilling rigs don't just emit noise; they cause a whole suite of impacts, including exhaust from their diesel generators, visual disturbances, and vehicle traffic. So observation alone can't confirm why the sage-grouse are disappearing.

FRED ATWOOD

*Author Neil Losin, at right, notes the time, location, and details of noise recordings collected in the natural-gas fields around Pinedale, Wyoming. He was a research technician in Gail Patricelli's lab at the University of California, Davis from 2005 to 2006.*

Back in Hudson, Patricelli and postdoctoral researcher Diane Blackwood have figured out how to separate noise from the other impacts. Here there aren't any actual drilling rigs nearby. So Patricelli, Blackwood, and Ph.D. student Jessica Blickley are performing a carefully controlled experiment, introducing noise alone to four leks and leaving four others undisturbed. Without the aid of a real drilling rig, reproducing drilling noise at a realistic level is a challenge; we destroyed several expensive speakers trying, but eventually Blackwood found a setup that worked.

With this large-scale noise playback experiment, the first of its kind, Patricelli will discover whether noise alone disrupts sage-grouse breeding behavior. We may not see an impact right away; males are stubborn and tend to stay at the same lek year after year. But yearling males may not settle on leks with noise, so we may begin to see the effects of noise in the second year of the experiment. Patricelli recognizes the possible impacts of the research. But the potential rewards are great, and any negative effects of the noise experiment should be local and transient.

To make the playback experiment realistic, we recorded the sound of gas drilling rigs near Pinedale. Sarah and I employed autonomous recording units, much like those being used to search for the Ivory-billed Woodpecker in Arkansas and Florida, to obtain noise samples automatically on a 24-hour schedule. We recorded dozens of rigs and frequently met their operators. We seldom encountered any resistance, and never belligerence, but invariably the energy personnel insisted that development was not harming wildlife. "There were a dozen antelope right here on my pad yesterday," they might say, or "I almost stepped on a grouse just this morning!"

And indeed, the Upper Green River Valley is still a stronghold for wildlife. Besides being fine sage-grouse habitat, it is also the wintering ground for some 40,000 pronghorn and the largest mule deer herd in the United States. For the moment, it's still easy to see these sagebrush symbols around Pinedale, but they aren't as numerous as they used to be. Mule deer have declined by 46 percent in the Pinedale Anticline Field since 2000, and pronghorn avoid the heavily developed Jonah Field. Brewer's Sparrows and Sage Sparrows, two sagebrush specialists, are also displaced by gas development.

Amazingly, this has all happened in the last decade. The pace of development is staggering. After a drilling rig is erected, it takes a month or two to dig a well 8,000 to 20,000 feet through solid rock. The rigs run 24 hours a day, seven days a week. When one well is finished, the whole setup—a 100-foot-tall rig, three or four house-sized generators, a dozen office trailers, and other heavy equipment—is dismantled and re-erected in a new spot, all in just a few days, and the drilling begins anew.

Hundreds of wells are already operating around Pinedale, and thousands more have been authorized. So far, the BLM has been cavalier about granting leases and has issued numerous exceptions to the regulations intended to protect wildlife.

Studies like Matt Holloran's that document population declines are the first step toward preserving wildlife. But to the natural-gas juggernaut, which marches under the banner of energy independence and national security, sage-grouse aren't much of an obstacle. If we want to conserve the sage-grouse, we need to know how energy development causes their decline.

Of all the possible threats to sage-grouse, noise may be one of the simplest to address. In the Powder River Basin of north-central Wyoming, David Naugle of the University of Montana has found a more complex mechanism underlying sage-grouse declines. Here, coal-bed methane extraction, another energy development process, creates wastewater pools that become breeding grounds for mosquitoes that carry West Nile virus (WNV). Together, human disturbance and WNV have resulted in an 86 percent decline in sage-grouse populations in developed areas of the Powder River Basin since 2000.

Pinedale's natural gas development doesn't produce as many wastewater pools, and the area is too cold for West Nile virus to persist. We hope that understanding the impact of noise will be the key to slowing the decline of sage-grouse in the Upper Green River Valley.

If noise is the key, how might we proceed? Better mufflers could be employed on the generators. When energy companies clear and level a pad for drilling, the leftover earth could be piled on the side of the rig facing known lek sites, blocking much of the noise. And traffic could be better controlled during lekking hours from February to May. Measures like these are easily within the reach of the energy industry; EnCana, one of the big companies working in the Upper Green River Valley, extracts about $2.5 million worth of natural gas per day from the Jonah Field alone.

With luck, Patricelli's research will help Wyoming's wildlife managers recommend measures that will allow sage-grouse and energy development to coexist. Patricelli optimistically points out that, unlike some of the other consequences of energy development, "noise is mitigable."

Back on Cottontail Lek, far from the hubbub of Pinedale's natural gas fields, my morning with the sage-grouse is winding down. Most of the females leave, but the males strut and bicker among themselves for an hour or two after sunrise, sometimes just feet from my blind and oblivious to my presence. Their activity surges when an occasional female wanders onto the lek. The female looks disinterested, feeding nonchalantly as the males vie for her attention.

And then a moment arrives when one bird thunders into the air, then another, then dozens more, until the lek is empty. One pair of males is left behind in a standoff, neither willing to fly, lest the other think he has won. This morning their departure is hastened by a Rough-legged Hawk flying low over the lek. Already restless, they flush and quickly disappear over a ridge, until tomorrow.

Sage-grouse have been a fixture of the interior West since before humans arrived in North America, and they have become a symbol of our frontier. With the careful attention of scientists such as Gail Patricelli, we are learning the secrets of the sage-grouse's amazing biology. And with sound conservation science and responsive policy, we may continue to marvel at their annual breeding rituals for centuries to come. ■

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*Neil Losin is currently pursuing a Ph.D. in Ecology and Evolutionary Biology at UCLA. He has been photographing birds since 1999. Visit his web site at <http://www.neillosin.com>.*

## LEARN MORE ON THE WEB

***Gail Patricelli's lab web site:*** Here you can read more about Patricelli's past and present research projects, see more images from Wyoming, and even watch video captured by the fembot. You can also learn about research conducted by Patricelli's graduate students and postdoctoral researchers.
**<www.eve.ucdavis.edu/gpatricelli/>**

GARY KRAMER

***Sagebrush Sea Campaign:*** This organization promotes public awareness of sagebrush habitats in the American West. On the group's web site you can find an excellent overview of the natural history of the sagebrush ecosystem, as well as a summary of the ways human activity threatens the sagebrush.
**<www.sagebrushsea.org>**

***Upper Green River Valley Coalition:*** This grassroots organization is an advocate for wildlife, sagebrush habitat, and clean air in the Upper Green River Valley. The group's web site is an excellent resource for information about the energy development around Pinedale and its environmental consequences.
**<www.uppergreen.org>**

***SkyTruth Upper Green River Valley video:*** SkyTruth is an organization that uses satellite and other remote-sensing imagery to raise awareness of environmental issues. The group has created a dramatic 10-minute video about gas development in the Upper Green River Valley, which can be viewed at the web site below.
**<www.skytruth.org/ugrvvideo.htm>**

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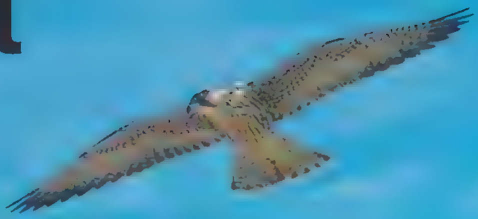

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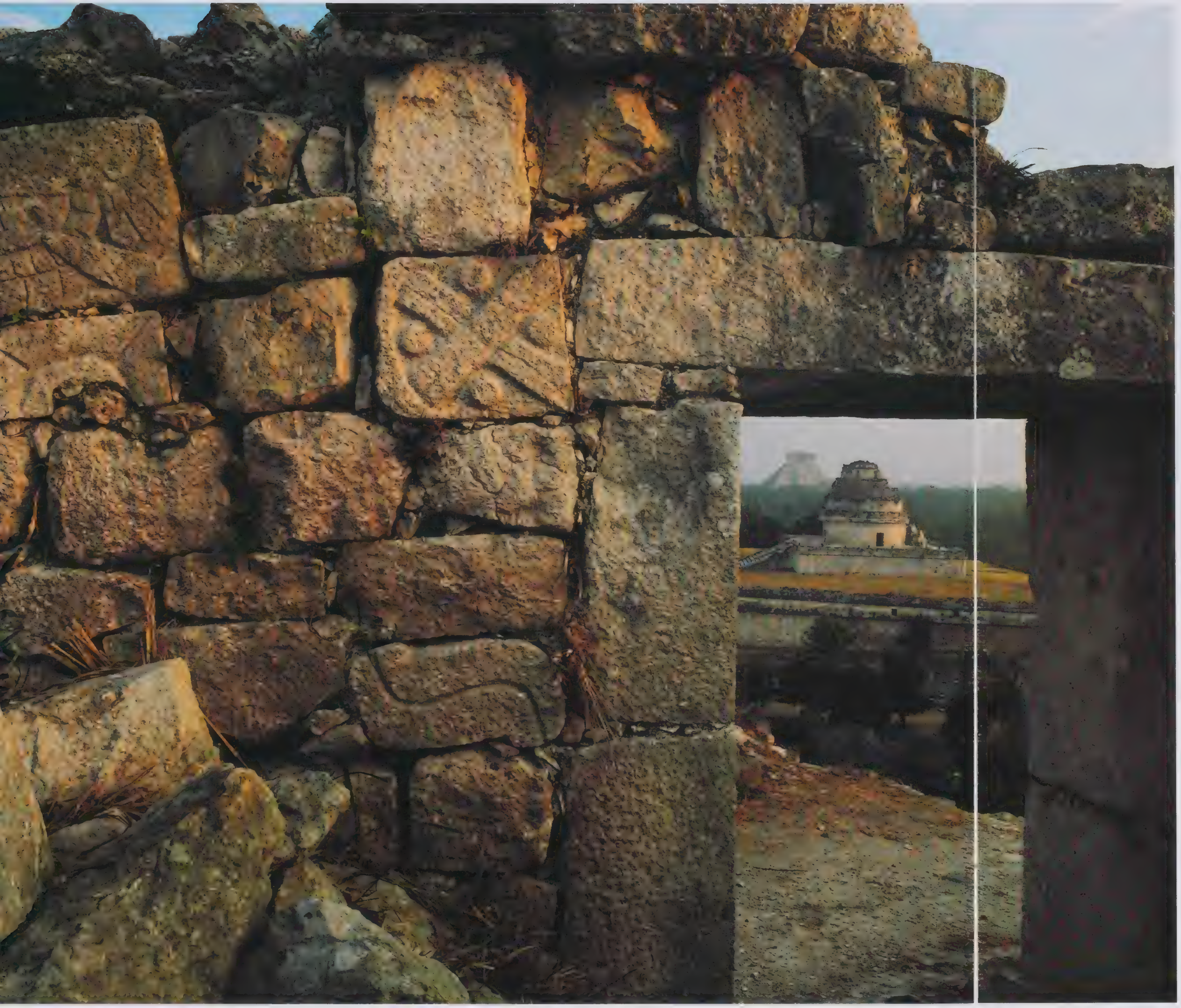
KATHLEEN NORRIS COOK



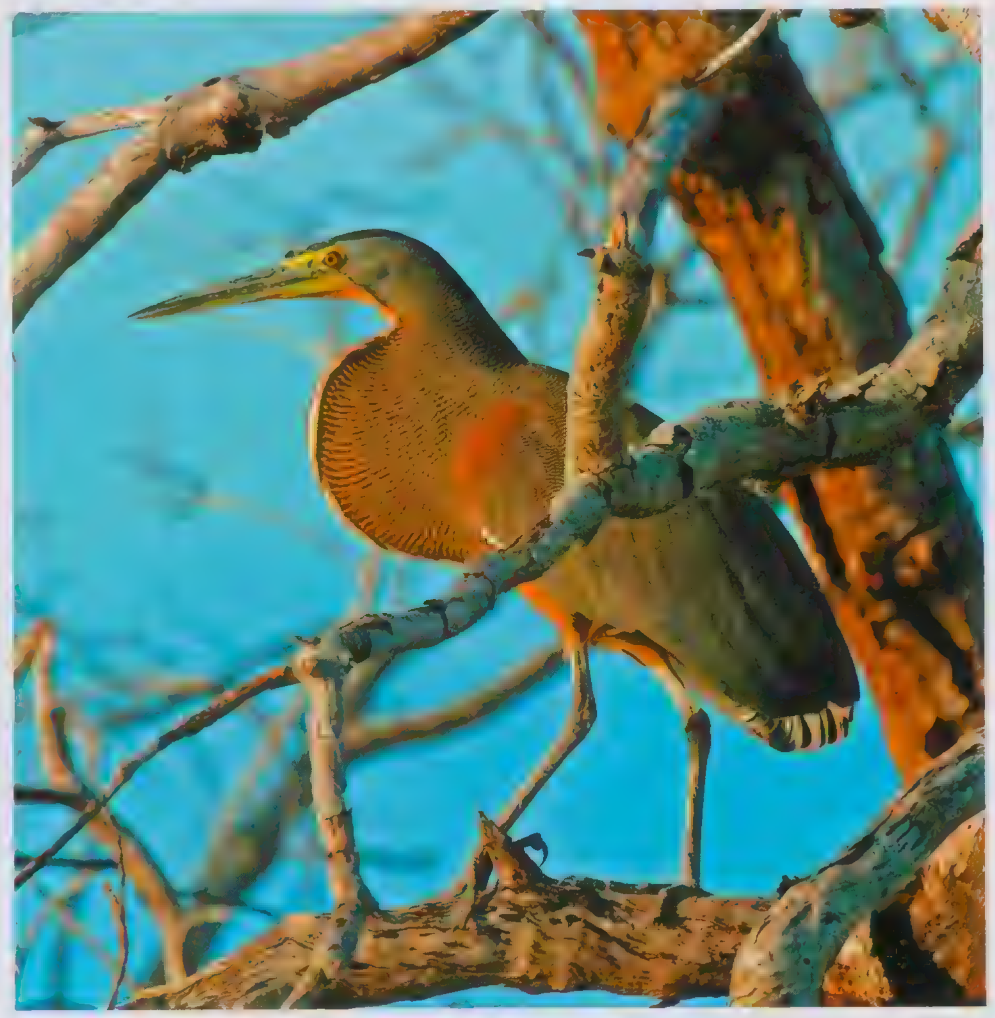
*In Mexico's Yucatan Peninsula, visitors can combine birding with archaeological exploration. Above, the ancient Mayan city of Chichen Itza. At right, a Bare-throated Tiger-Heron.*

# IN THE LAND OF THE MAYA

BY GEORGE OXFORD MILLER

## *Birding Mexico's Spectacular Yucatan Peninsula*

In rapid succession, birds both familiar and foreign to me display in the treetops and thick undergrowth. A Gray Catbird, the same species that nests in my backyard in New Jersey, fusses in the bushes while a pair of lemon-yellow Social Flycatchers forages from an exposed limb. A flock of raucous White-fronted Parrots screams at each other in one tree while a Nashville Warbler forages in another. With both migrants and tropical species, Mexico's Yucatan Peninsula combines life-list exotics with birds I'm accustomed to seeing at my patio feeder.



CRISSY WILLIS/SIMPSON'S NATURE PHOTOGRAPHY

Following Neotropical migrants from their nesting grounds to winter habitat is a lot like reading a book from the opening chapter, where the characters are introduced, to its conclusion. Except with birds, an additional cast of characters is introduced in the last chapter. Here in the Yucatan woodlands, I see a Black-and-white Warbler—a species that nests over much of the eastern half of the

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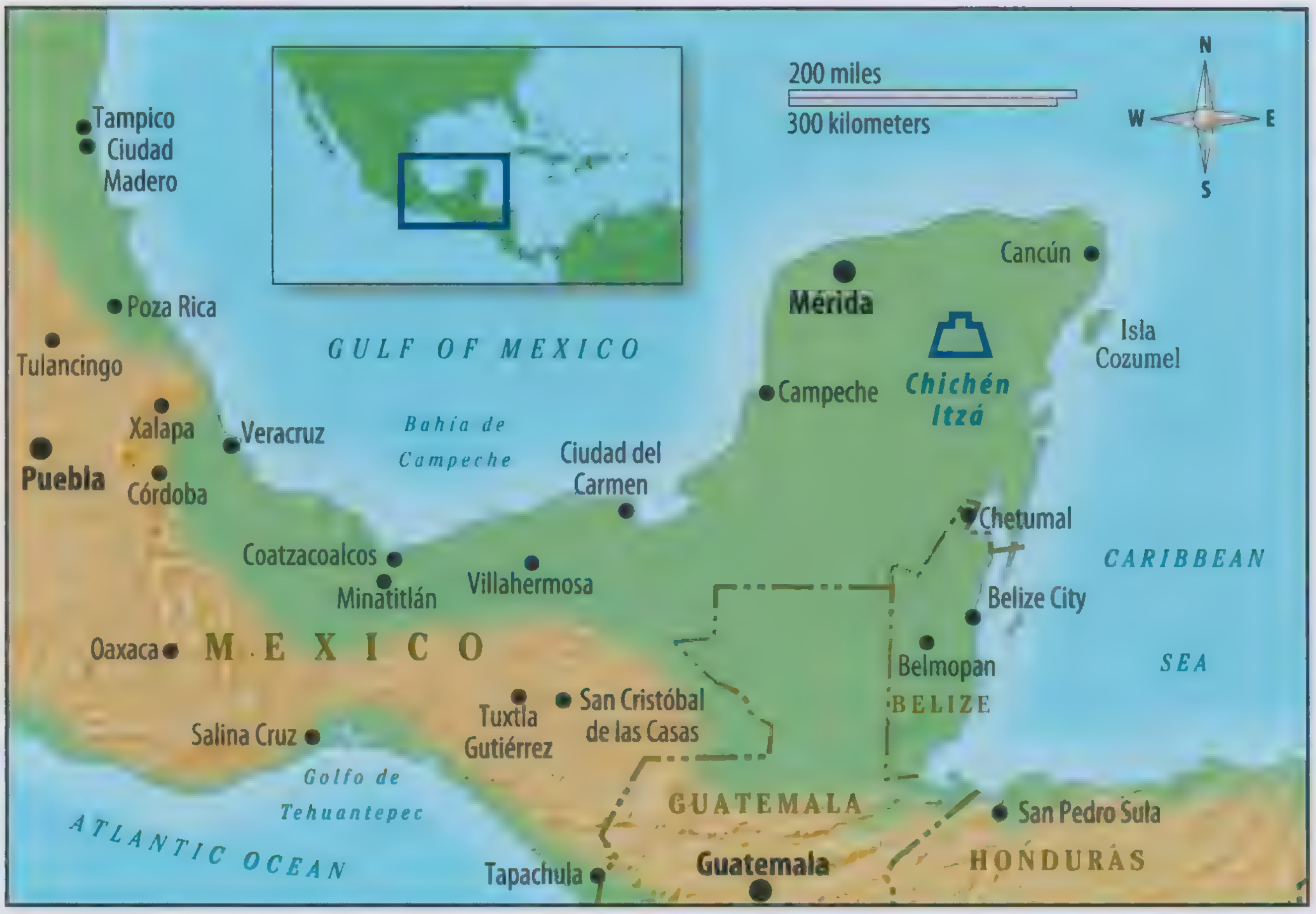
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United States—scurrying along a branch. Hugging the trunk of the same tree, I also see an Olivaceous Woodcreeper, a resident from central Mexico to Peru.

Like many of my hometown birds, I flew south to the Yucatan before the first snowstorm hit, but not just to escape the cold. I wanted to meet my birds' tropical neighbors and see how living conditions were holding up in their winter retreat, especially after Hurricane Wilma slammed the Yucatan coast. Since 2002, the Toh Bird Festival, held in early December in the state of Yucatan, has brought bird watchers, researchers, conservationists, and ecotourism leaders together to celebrate the avian population. In 2005, when I attended the festival, the events took place among the reconstructed temples and pyramids of Chichen Itza, one of the most impressive city-states of the ancient Mayan world, and in tiny villages where lifestyles have changed little since the Mayan civilization mysteriously crashed 1,000 years ago.

Sixty-five million years ago, this area witnessed a far more cataclysmic crash, which—like the vanished Mayan Empire—still influences life today. A six-mile-wide meteor slammed into the Cretaceous sea, near the present-day coastal town of Progreso. The equivalent of a "nuclear winter" resulted from debris suspended in the atmosphere, pushing 70 percent of the world's animal species to extinction. Without the disappearance of dinosaurs, the mammals—and eventually *Homo sapiens*—may never have evolved to dominate the planet.

During the 40 million years that followed, 2,300 meters of limestone sediments accumulated over the underwater crater, and the feathered descendents of the doomed dinosaurs evolved to dominate the air. Then, 25 million years ago, the peninsula started to rise from the sea. Today, the flat, limestone plateau separates the Gulf of Mexico from the Caribbean like a giant thumb extending into the sea. The protrusion serves as the launching platform and first landfall for migrant birds that cross the 650-mile stretch of open water to the Gulf Coast of the United States.

Surrounded by ocean on three sides and with dense rainforest bordering the south, the Yucatan forms an ecological island with a rich mosaic of ecosystems. The varied habitats harbor 543 species of birds in 75 families—more than half of all the species found in Mexico. Fourteen endemic species of birds and 60 to 100 endemic subspecies have evolved in this isolated environment. The local birds are not alone, either. About 129 North America species winter in the Yucatan, and another

GEORGE OXFORD MILLER

*Since 2002, the Toh Bird Festival, held in early December in the state of Yucatan, has brought bird watchers, researchers, conservationists, and ecotourism leaders together to celebrate the avian population. In 2005, the festival events took place among the temples and pyramids of Chichen Itza (on facing page), one of the most impressive cities in the ancient Mayan Empire.*

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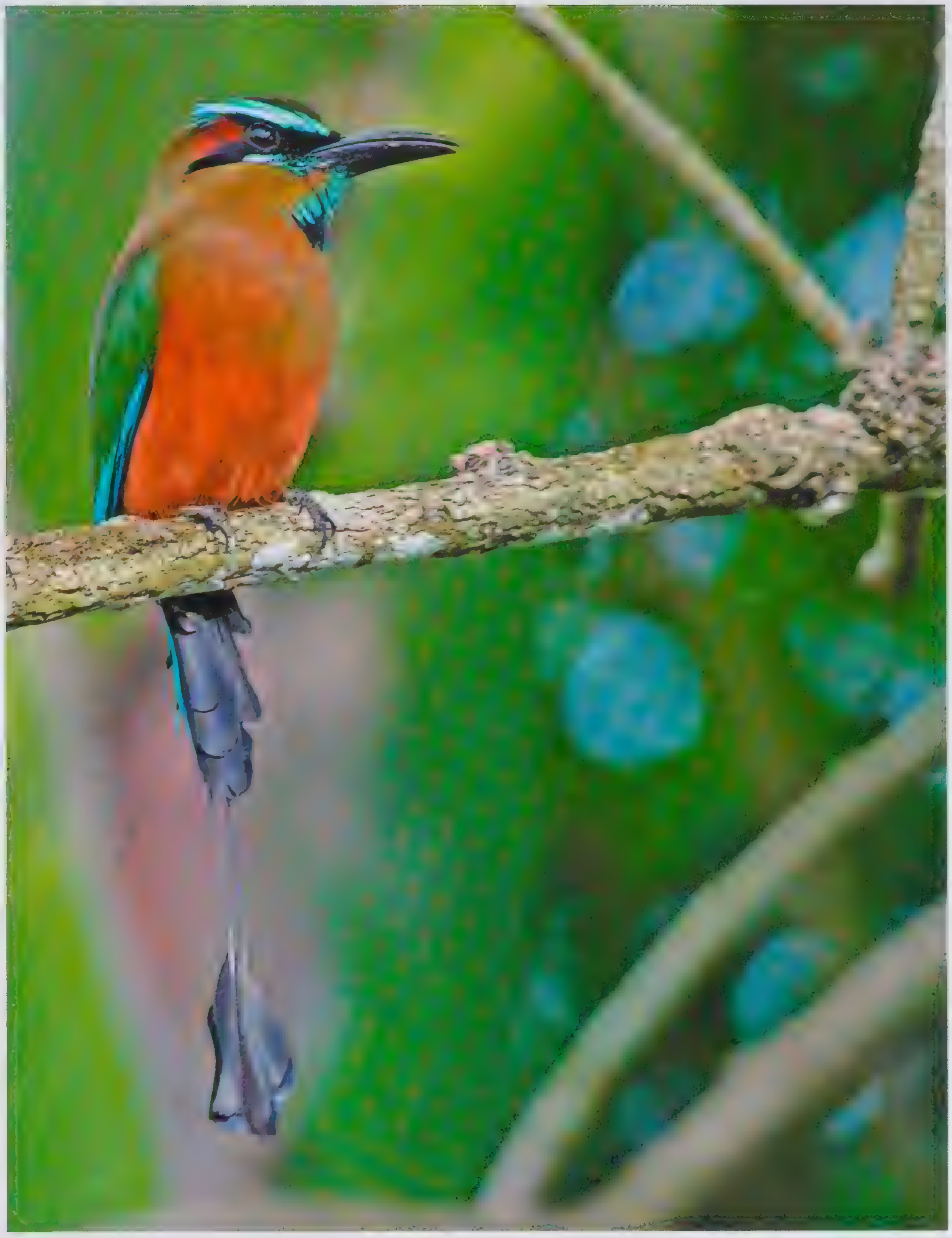

CRISSY WILLIS/SIMPSON'S NATURE PHOTOGRAPHY

*In Mayan, Xoc ch'ich' means bird watching. The Toh Bird Festival adopted the Mayan name Toh from the Turquoise-browed Motmot.*

55 pass through. After being ground zero for the mass extinction of dinosaurs, the Yucatan Peninsula today is critically important for the survival of their Neotropical descendants.

To sample the Yucatan's diverse birdlife, the Toh Festival organizes day trips to visit deciduous scrub forests, semi-evergreen woodlands, seasonally flooded wetlands, cenotes (flooded sinkholes), mangrove estuaries, coastal marshes, and dune habitats. I stay at the Mayaland Hotel adjacent to the Chichen Itza archaeological site and rendezvous with our team of 10 bird watchers at dawn to participate in the festival's 36-hour birding marathon.

Eduardo Munoz, the festival organizer representing Yucatan State Tourism, joins our group. We quickly learn that the birds, animals, and plants can't be separated from Mayan culture, both past and present. Of the two million inhabitants of the Yucatan, half are Mayan and 37 percent speak only Mayan.

"In Mayan, Xoc ch'ich' means bird watching," Munoz says. "The Toh Bird Festival adopted the Mayan name Toh from the Turquoise-browed Motmot. Besides promoting the rich diversity of the birdlife in the Yucatan, one of the main purposes of the festival is to create in the local population a consciousness and sense of pride about the birds they see every day. This year we have about seventy attendees, with more locals than last year and more people from farther away in Mexico. The festival is becoming a national event."

Our birdathon team doesn't have to travel far to begin surveying the resident and migrant birds. A side road leads into the low, semi-evergreen forest that dominates the central portion of the peninsula. Ramirio Lara, a professional birding guide from the seaside village of Celestun, home of 5,000 human inhabitants and 40,000 flamingos, leads our group. As the morning sun crests the treetops and splashes across the fields and forest, the woodlands come alive with activity.

Lara leads the way and points out the birds he spots and hears. In the thick vegetation, about half of his identifications are by call. A pair of "Ridgeway's" Northern Rough-winged Swallows suns on a snag, and a throaty trill announces a hidden Black-headed Saltator. He always identifies birds by their English names.

"All the guides learn the English names; they're more universal," he says. "Most European birders use English names and guidebooks." He smiles and shakes his head. "But so many names...woodpeckers, woodcreepers, it's hard to keep them straight."

With the United States, Canada, Germany, and Scandinavia as the main nature tourism markets, the Yucatan State Tourism Office, the private ecotourism sector, and conservation groups all recognize the need for trained indigenous guides to speak English.

Barbara MacKinnon, an avid birder and conservationist, has lived in the Yucatan since the 1970s. She was the founding president of Friends of Sien Ka'an Biosphere Reserve, a 1.6 million–acre UNESCO World Heritage Site on the Caribbean coast, and helps organize the Toh Bird Festival. MacKinnon developed a guide-training course and has taught it in five reserves and eight communities across the Yucatan.

"Preserving bird habitat in the Yucatan starts on the grassroots level, but it's really an international effort," she says. "The National Fish and Wildlife Foundation in the United States funds many of the CAPY (Conservación de las Aves de la Península de Yucatan) bird conservation projects. The U.S. Fish and Wildlife Service, the National Wetlands Conservation Council, and the National Wetlands Conservation Act fund projects at the Sian Ka'an Reserve. Nature Canada through the Canadian International Development Agency financed my bird-guide training manual."

MacKinnon considers her guide-training courses to be an essential component for developing environmental values in the local populace. "The three-month course is all in English. The training goes beyond just learning English bird names. We emphasize conservation and economic issues. We never give a course unless the community wants it in the name of business with real economic benefits. Conservation needs alone are not enough to save the land and wildlife. We have to give economic value to the local people for preserving the natural resources."

To date, MacKinnon has trained about 200 Mayan villagers to be professional birding guides. "The best nature guides are the ones who grew up in the area. They know the Mayan names for all the plants on the species level, but they tend to group similar species of birds, such as the eight species of orioles in the Yucatan. With their

*Below, bird watchers visit a tidal pond in Ria Lagartos Biosphere Reserve in the Yucatan to look for endemic birds and crocodiles. On the facing page, the Turquoise-browed Motmot is a stunning medium-sized bird, often seen perched in the open as it scans for insects, small reptiles, and other prey. In the Yucatan, it is often called the pájaro reloj ("clock bird"), because it swings its tail like a pendulum.*

GEORGE OXFORD MILLER

*The largest flocks of flamingos in North America can be seen in the Yucatan. Forty thousand of these elegant birds winter in the lagoons of Celestune Biosphere Reserve, above. At right, abandoned slash-and-burn cornfields dot the forests of the peninsula.*

GEORGE OXFORD MILLER (2)

> *A group realized that smoke from burning garbage in the municipal dump was driving the flamingos out of the reserve. They protested and blocked the garbage trucks and forced the town to find another location.*

skills, all we have to do is put English names to what they already know. The Toh Bird Festival helps by giving them experience in leading groups. In four years, it's become the icon of bird conservation in Mexico.”

Like Ramirio Lara, a boatman who takes visitors to see the flamingos in the Celestun Biosphere Reserve, the trained bird guides have other sources of income. “The guides can't depend on tourism for 100 percent of their income,” MacKinnon says. “They have to diversify. Most are fishermen or farmers. As bird watching develops more economic value, they are taking action to protect their source of income. A group realized that smoke from burning garbage in the municipal dump was driving the flamingos out of the reserve. They protested and blocked the garbage trucks and forced the town to find another location.”

Lara earns his reputation as one of the top birding guides in the area. He takes our early morning group along a narrow path that leads to a dry, collapsed sinkhole. In a few minutes, he points out a Green Jay, a Summer Tanager, an Altamira Oriole, and a Rufous-browed Peppershrike. A Blue Bunting flits through the vegetation and a flock of Olive-throated Parakeets flies over.

Trees and bushes cover a mound of broken rocks and rubble bordering one side of the depression. “That's an unexcavated Mayan ruin,” says Alfonso Escobedo, an avid birder and director of Ecotourism Yucatan, a Merida-based company specializing in nature tours. “The forests of the Yucatan are full of them.”

As a member of the ecotourism sector, Escobedo's company has sponsored training for several of the naturalist guides, which costs about $3,000 apiece. “Ecotourism has two main purposes,” he says as we search for a Black Catbird in the dense vegetation. “Tours should interest people in both nature and the culture of the Mayans. We hope the festival will interest more people in birds and pass the bird-watching bug on.”

On the first day our team records 104 species of resident and migrant birds. For the second morning, we start at a nearby cenote in a wooded park. The porous limestone bedrock of the Yucatan absorbs rain like a giant sponge, and all the water flows underground toward the sea through dissolution channels. Thousands of collapsed sinkholes provided the only access to water for people and animals. The Mayans considered the cenotes sacred and built their cities around them. Archeologists have found a treasure trove of artifacts, and human remains, offered to the gods in the cenotes. As the primary sources of water, cenotes attract birds like a magnet.

The trees scream with the calls of Melodious Blackbirds and Clay-colored Robins. Vaux's Swifts and Cave Swallows zoom overhead. I studied breeding Cave Swallows in west Texas for my thesis project; now I see them in their winter habitat zipping in and out of the collapsed sinkhole where they roost.

“The Toh, or motmot, likes to hang out around the cenotes,” Escobedo says. Sure enough, as though performing on stage, a pair of Turquoise-browed Motmots display in a tree at eye level. One dramatically cocks his crest to be sure we understand how it got its name. Motmots, the only birds that purposely modify their plumage, strip a section of their long tail feathers to leave a prominent flag on the end, which they wave for attention.

We spot a juvenile Yucatan Jay sitting alone in a tree. “You don't normally see Yucatan Jays, especially juveniles, all alone,” Escobedo says. “Hurricane Wilma disrupted a lot of the flocking birds. We won't know without more observation what the effects of the hurricane were on the bird populations.”

One of the festival program presenters, Paul Wood, an English ornithologist who has lived in the Yucatan and conducted research for 20 years, is currently documenting the effects of Hurricane Wilma on birds along the coast. Wood manages a privately owned 4,500-acre nature reserve, Reserva T'isil, and Santa Maria ecolodge on the Caribbean coast. For four years he has studied the importance of cenotes as water sources for migrating birds. The hurricane devastated much of his research area.

“Hurricane Wilma completely transformed 1.5 million acres of forest habitat along the coast,” he says. “From 50 to 70 percent of the canopy cover was lost, the habitat was fragmented, and all the fruit and seeds were stripped away. The forest needs a whole growing cycle to recover. The response of the birds will tell us a lot about how they use the habitat.”

Wood has already seen dramatic changes in bird populations. “Many species have no food left,” he says. “They had to move on or die. I've seen significant decreases in Worm-eating, Blue-winged, and Black-and-white warblers and other species that feed on insects in dead leaves. Swainson's Warbler completely disappeared. Whole guilds of birds, such as the aerial insectivores, were affected. Doves and pigeons are just gone.”

Wood's long-term population studies on the Reserva T'isil provide a pre-hurricane database to compare species numbers, spatial use of habitat, and rate of recovery. The reserve is part of a 250,000-acre section of pristine forest in one of the fastest-growing tourist areas of Mexico. The unabated development of tourism threatens to alter the ecology of the region more than any hurricane.

GEORGE OXFORD MILLER (3)

*Villagers in San Felipe Tinum (left) live in houses that have changed little for thousands of years (above), and yet they print copies of the Mayan calendar on home-made paper with computers and ink-jet printers. These days, even the smallest villages have computers. The boy at right holds a print he made of a Mayan image.*

"This area of the peninsula is the northernmost extension of the tropical forest," Wood says. "With both Yucatan and Caribbean endemics, it's incredibly diverse. The largest pre–Classic Mayan archeological site ever mapped is located on the reserve. If someone doesn't speak up about this area, it will disappear. We're trying to give the owner, a Houston lawyer, a different vision of how to develop the land. We want to treat the forest area as a reserve and use the lodge as a hotel to support the reserve. Somehow we have to make it work. It's a use it or lose it situation."

Wood is also active in the guide-training program, and Ramirio Lara is one of his prime students. "Educating local guides is the only way to go about conservation," Wood says. "Ramirio has been working with me for three years. He now has the patience to spend eight hours in the forest observing bird behavior. He and the other guides have learned to make the connection between the environment and their lives. They formed local bird clubs, take kids out birding, organized litter collection, and created more environmental awareness in their communities. We can't save the world until the locals stand up to the developers and say no, even if it means fewer jobs."

One of the day trips organized by the Toh Festival takes us into a tiny village where jobs of any kind are a primary concern. We bird along a side road that dead-ends in San Felipe Tinum, a village with about a dozen thatched huts connected by paths. Some of the one-room huts have electricity, but water comes from a central water faucet where the villagers wash dishes and clothes and bathe. The residents slash and burn the forest to plant their milpas, or corn fields. We walk through the community to the edge of a field overgrown with morning glories and other vines and brush.

"They can only get two crops from the fields before the soil gives out and they have to clear another field," Escobedo says. "Then the forest slowly reclaims the land." We see a White-bellied Emerald (a hummingbird) and a White-eyed Vireo foraging along the forest edge, but nothing in the field.

Returning through town, we talk to a family that makes their own paper. A steel drum contains a slurry of decomposing banana leaves and other plant material. They press the fibers into an 8x14-inch mold to make paper with one slick, finished side. The man shows us sheets with Mayan calendar symbols and warrior images printed in color that he sells for 20 pesos each, about two dollars. I ask Escobedo how they make the prints. He grins and says, "Ink jet printers. Even the little villages have computers."

The federal and state governments on the Yucatan Peninsula have established 50 protected areas that preserve about 11.4 million acres of critical habitat for resident and migrating birds. But preserving land alone is not enough. The efforts of the Toh Bird Festival and many dedicated individuals are helping to turn conservation into a sustainable economy for the modern-day Mayans.

The Mayans live with their feet in two worlds. Surrounded by constant reminders of an empire that developed a written language and a numbering system with the concept of zero—something the Romans never figured out—and equaled in majesty the great civilizations of the Western World, the rural population lives in oval huts made from materials gathered within walking distance. Yet they embrace the computer age and an economy that increasingly depends on global tourism. Few places like the Yucatan exist where bird watching plays such a vital role in creating the grassroots economic incentive and environmental consciousness for wildlife preservation. ■

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*George Oxford Miller is a freelance writer and photographer based in New Jersey. He frequently writes for this magazine.*

*Helpful information:*
Sixth Annual Toh Bird Festival: November 29 through December 2, 2007.

*Web sites:*
Toh Bird Festival, <www.yucatanbirds.com>;
Ecotourism Yucatan, <www.ecoyuc.com>

*Books:*
Steve N. G. Howell and Sophie Webb. 1995. *A Guide to the Birds of Mexico and Northern Central America.* Oxford University Press, New York.

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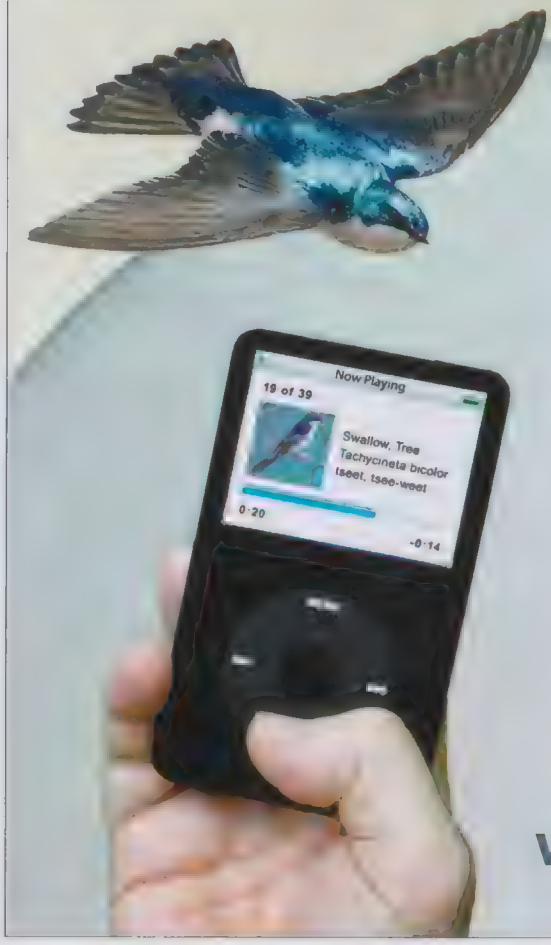
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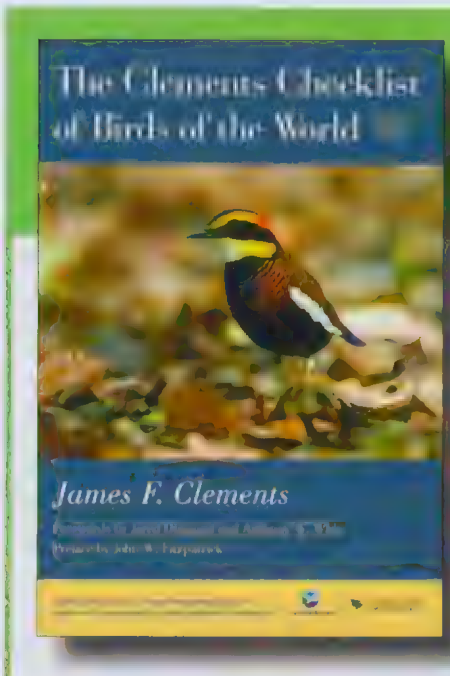
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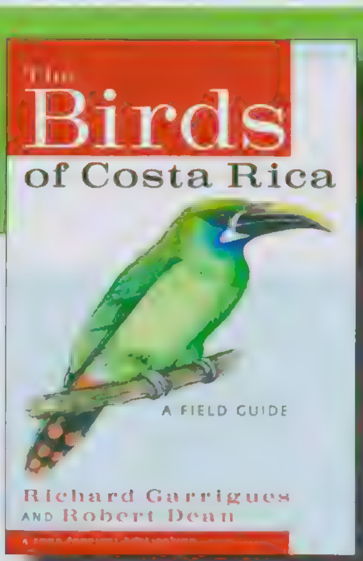
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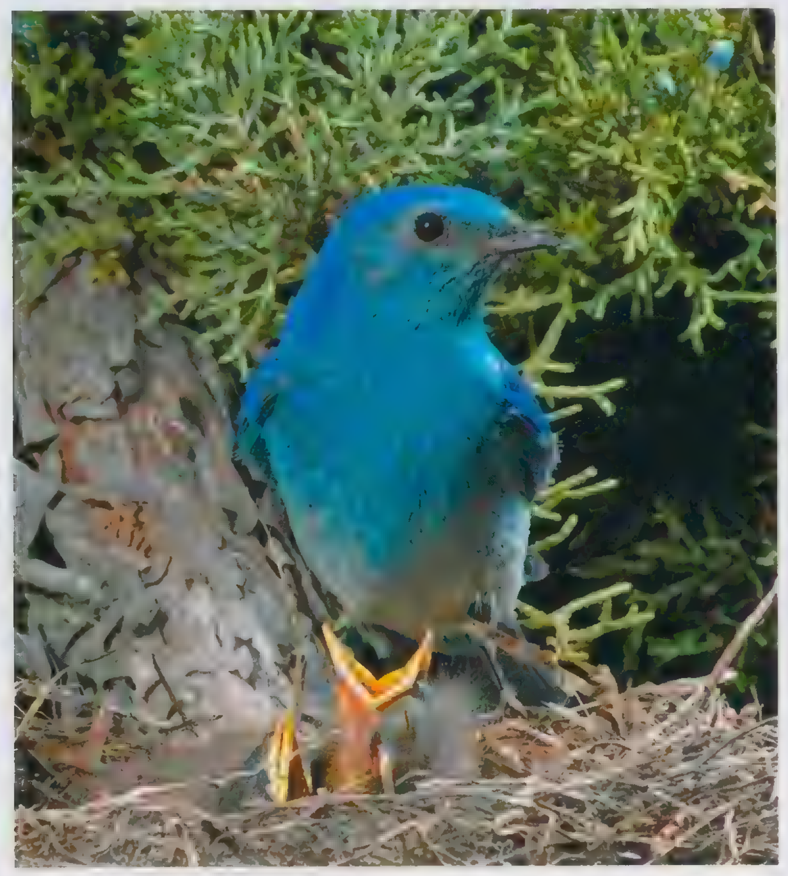
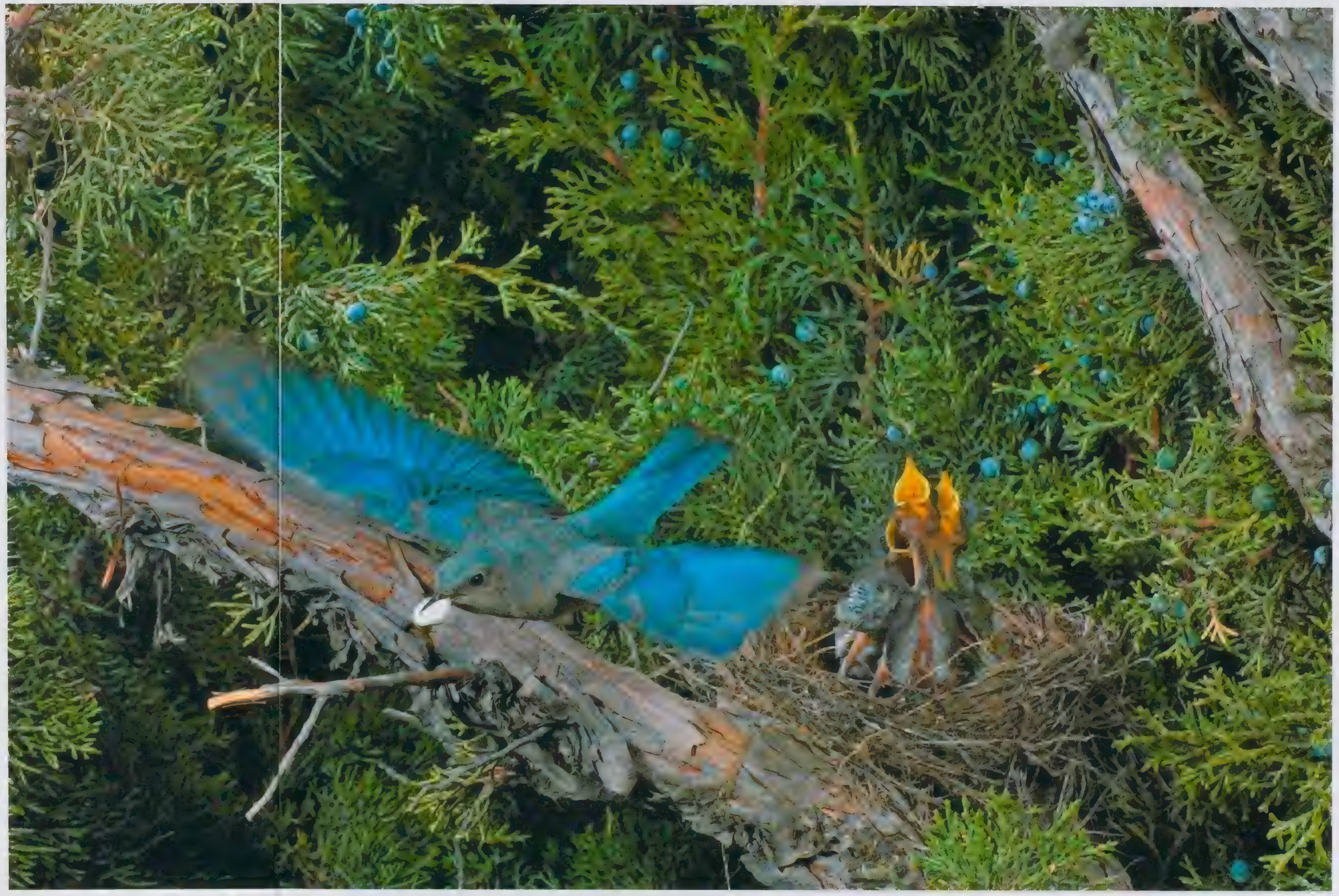
# *Thinking Outside the Box*

Text and Photographs by Damon Calderwood

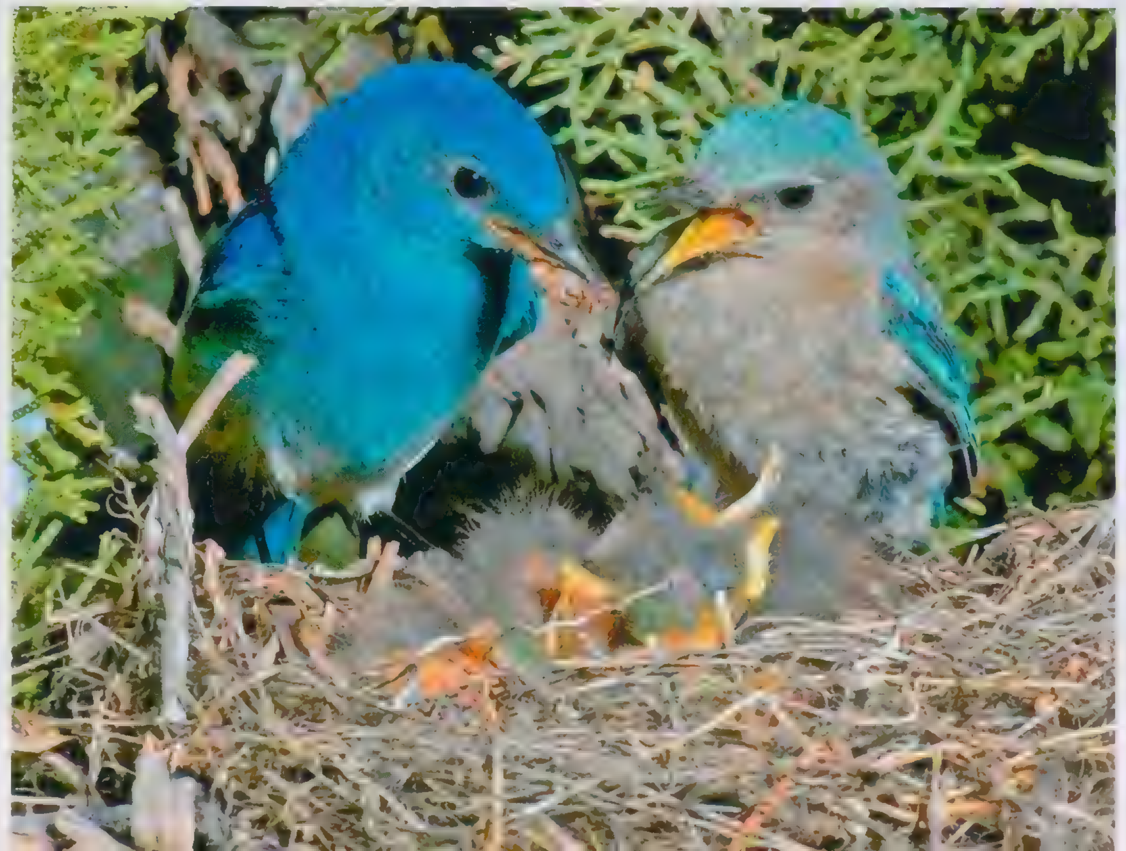
### *Rare documentation of a Mountain Bluebird raising young in an old robin nest*



Mountain Bluebirds are stictly cavity nesters, right? That's what all the books say—which is why I was so surprised when my photography partner, Don Waite, came back to the blind where I was photographing Vesper Sparrows and told me about the nest he had found. "You're not going to believe this," he said, flushed with excitement. About a mile up the road, he had come across a pair of Mountain Bluebirds carrying food, and he was able to track them to a juniper tree. Although this was exciting news, it got even better: when Don approached



*Who says that bluebirds need a nest box or tree cavity to nest successfully? This enterprising pair of Mountain Bluebirds appropriated an old American Robin nest in Oregon to raise their young. At left, the male stands guard over his brood of hungry nestlings. Above, the female carries a fecal sac away from the nest. At right, both parents together feed their young. This unlikely saga ended happily on June 16, 2006, when all of the young fledged successfully.*



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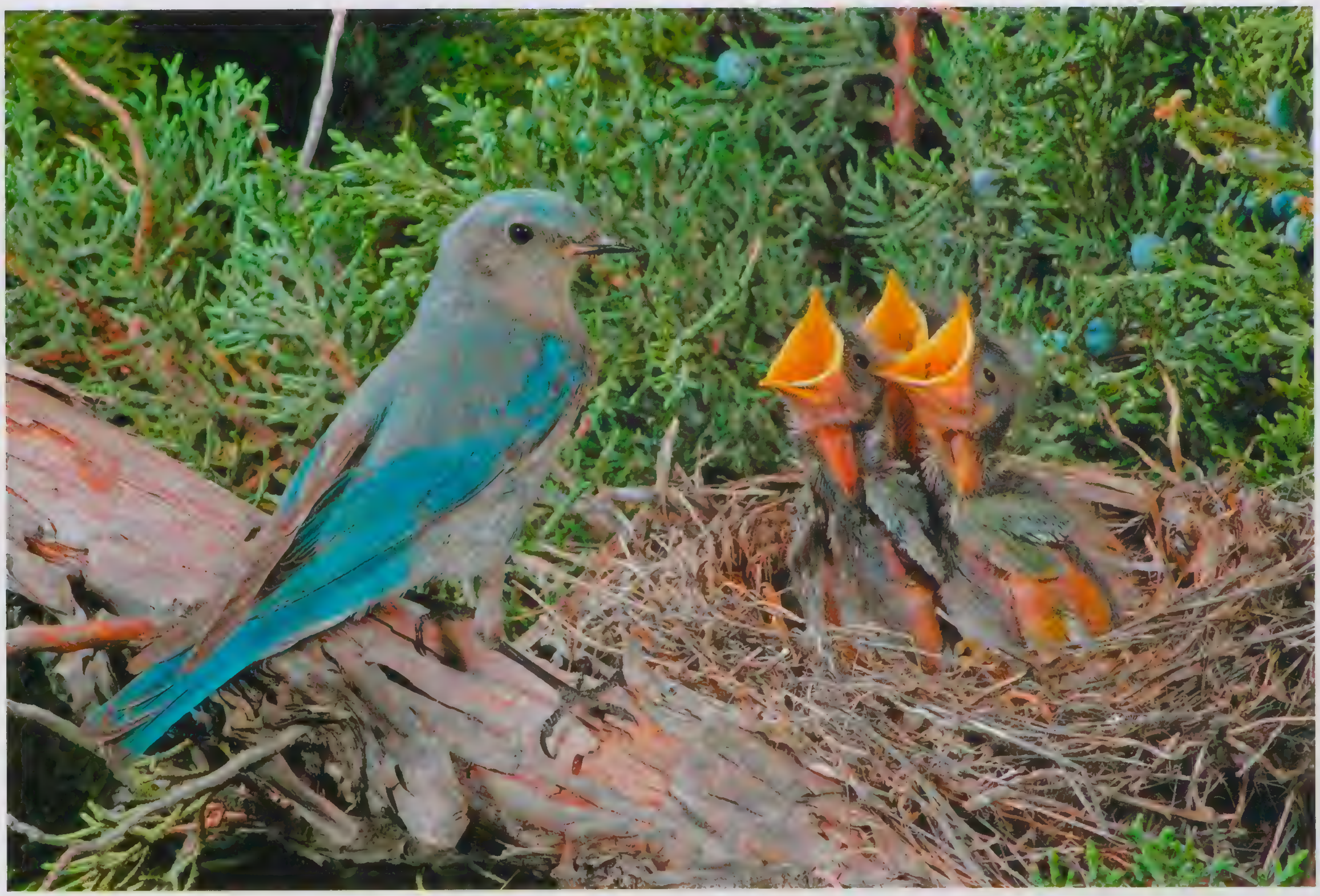

the tree, he found a bluebird nest with four small young saddled on a juniper branch. It was not in a cavity but out in the open in the abandoned nest of an American Robin. The bluebirds had simply relined the nest with strips of soft sagebrush and juniper bark. It was an incredible find. This was on June 6, 2006, in Burns, Oregon. A subsequent check of the state's bird nesting records turned up no reports of bluebirds ever nesting outside of cavities in Oregon. It was a first for the state, but I wondered whether any other records existed of this unusual behavior.

I did some research in the days that followed but only found one similar account. In 1932, Olaus J. Murie found a pair of Mountain Bluebirds nesting in an abandoned robin's nest in a cottonwood tree in Wyoming. His report appeared in *The Condor* in 1934. What stood out was his description of how a pair of chickadees had also appropriated an old robin's nest and had further excavated an already unusually deep cup in the mud bowl. Don and I had observed the female bluebird doing a lot of digging underneath the chicks as she brooded them. Perhaps she too was trying to create a sense of a cavity nest by digging as deep as possible into the mud cup.

Because cavities were scarce, this inventive pair of Mountain Bluebirds decided to think outside the box and found the old robin's nest to be a worthy fixer-upper. ■

*The author searched through the scientific literature for another example of Mountain Bluebirds using an open nest. He only found one: a 1932 record from Wyoming.*

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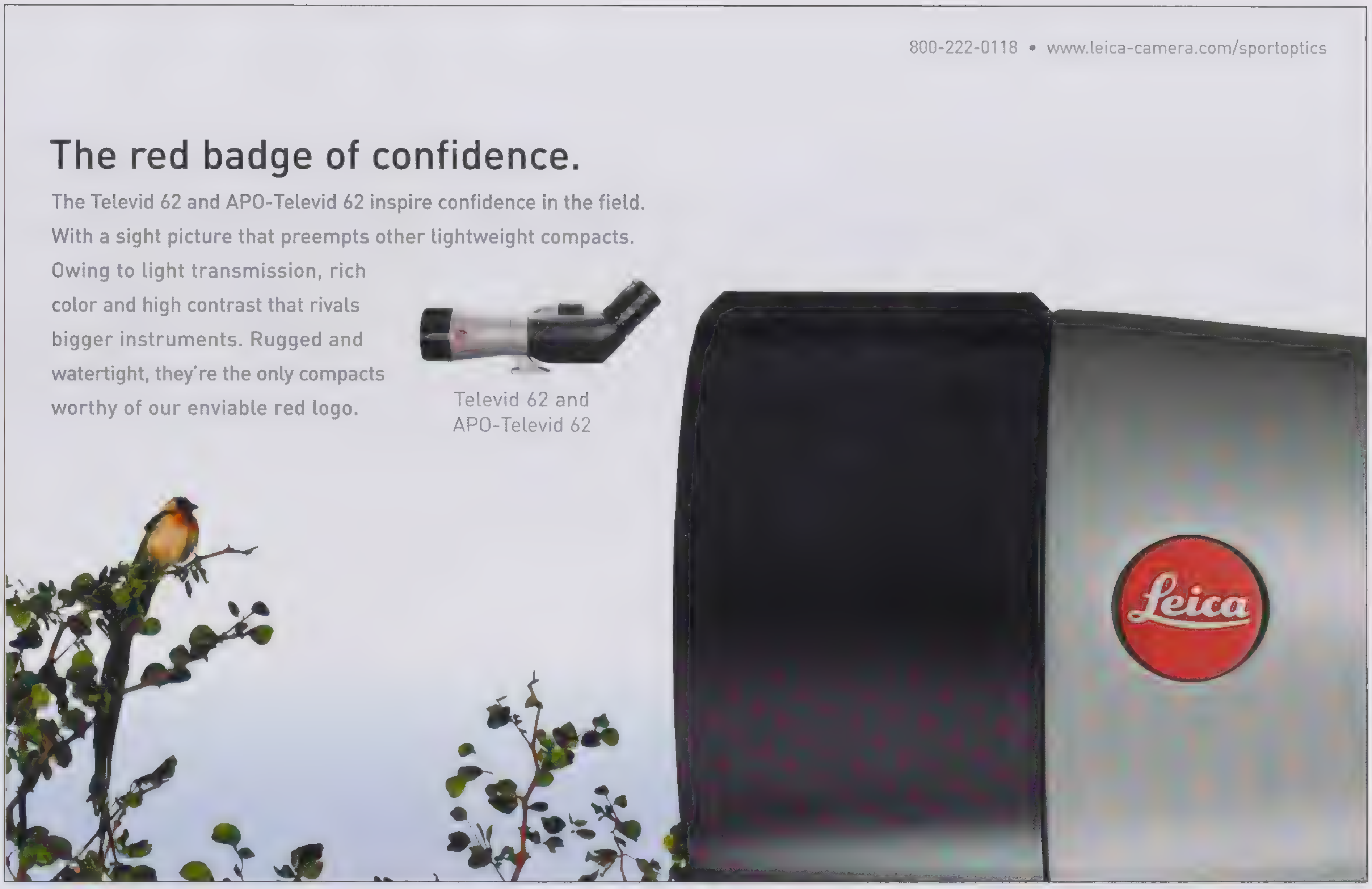
*Damon Calderwood is author of* Flights of Fantasy: Photographing North American Birds *<www.sandhillbooks.com>.*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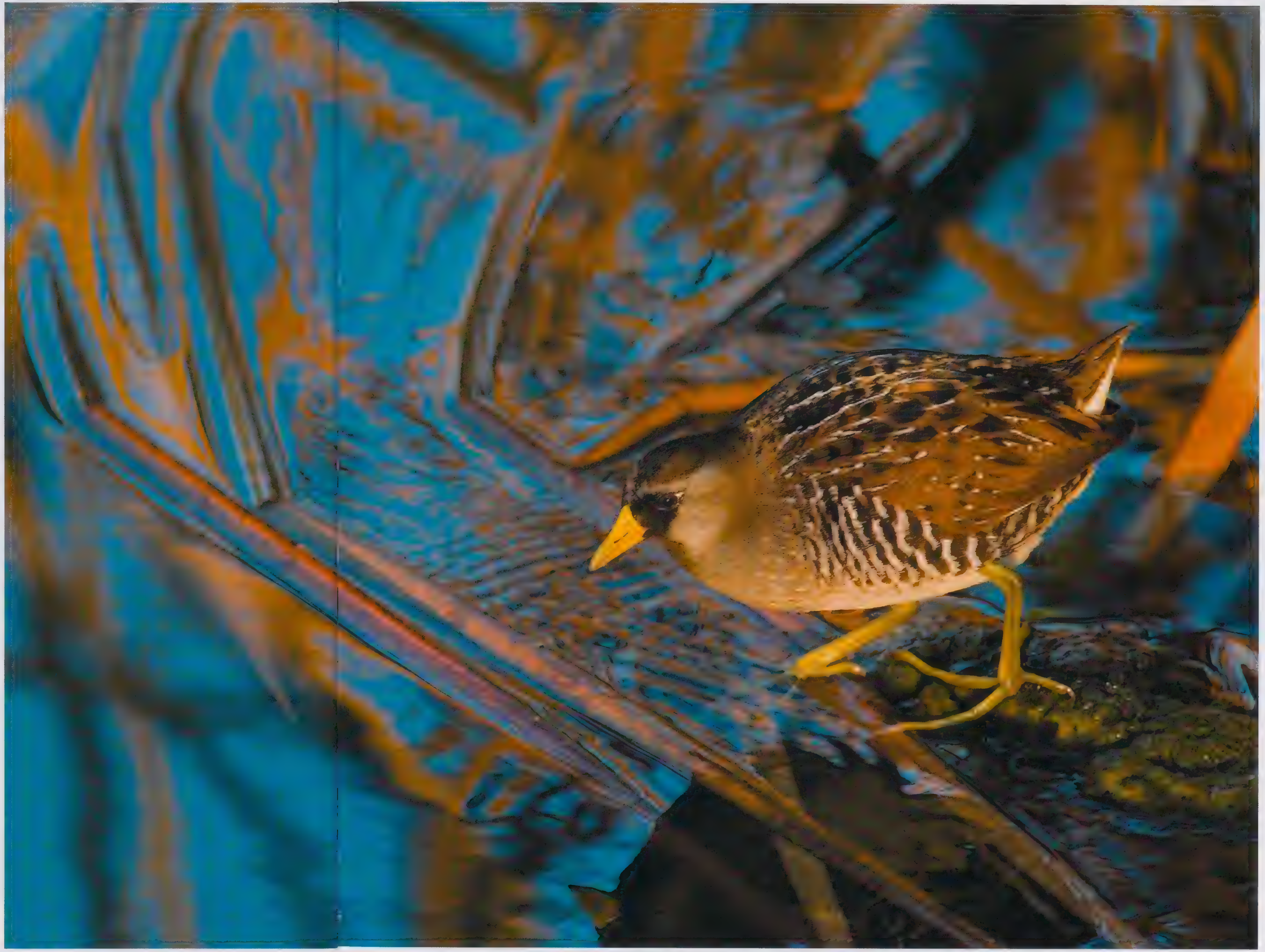
# PUTTING BIRDS IN THEIR PLACE

*Text and Photographs by Marie Read*

## *For more meaningful bird photographs, try to include the habitat*



*By including more of the bird's habitat in the background of this picture, the author created a strong visual design and captured more effectively the life of a Sora.*

A quarter century ago, when being a published bird photographer was still a dream for me, the leader of the local nature photography club, Mike Hopiak—an excellent bird photographer and naturalist—gave me some valuable advice: "A great nature photograph tells you something about your subject, besides how pretty it is."

Surf through Internet photography forums and personal web sites for bird images, though, and it appears that the goal of many budding bird photographers is still a classic full-frame bird against a clean, out-of-focus background, a style that documents what the bird looks like but little else. Today's high-tech digital cameras and superb-quality telephoto lenses have made it easier than ever to get excellent bird photographs. On the downside, simple portraits are now a dime a dozen.

To make your bird photographs stand out from the crowd, Mike's advice is as important as ever. One powerful way to achieve that is to include the bird's habitat in the photograph. The environmental portrait you'll produce tells the viewer something about the bird: where and how it lives its life and the way it interacts with, and is influenced by, the place it calls home. In other words, including the habitat lets the photographer tell a story.

This is great news for those stricken with lens envy or presented with a subject that can't be approached close enough to fill the frame. Take heart, and turn that erstwhile inadequacy to your advantage. Look at the scene as a whole—the bird *and* its surroundings. Are there elements in the environment, in addition to the main subject, that you can include to fill the space in the frame to create an interestingly composed and meaningful image? It's true that these kinds of images are more challenging to make than the usual portraits, but the results are well worth the time.

Consider my experience at Barnegat Light, New Jersey, one recent March. It's a well-known spot to see wintering Harlequin Ducks and other sea ducks. The harlequins rest at the edge of a long rocky jetty, seeing so many birders and photographers that they are fairly easy to approach if one moves slowly. Many portraits of these gorgeous birds have been taken over the years, including awesome headshots with every feather sharply defined. Stunning though those images are, they tell you little about the bird and the environmental forces with which it contends during its winter sojourn as a marine inhabitant. The Harlequin Duck makes a living by diving to forage in intertidal and subtidal zones, prying crabs, mollusks, and other marine invertebrates from underwater rocks. In doing so, it is exposed to the intense buffeting of the surf against the rocky coastline.

Several days into my trip, I'd already shot the standard stuff: harlequins perched, sleeping, swimming, preening, close-ups—everything that had already been done by numerous photographers before me. Yet I yearned for something different, something more meaningful. Then I noticed one male Harlequin perched on a rock with waves crashing around him, keeping his composure while surrounded by the power of the ocean. Although the bird filled only a small part of the frame, it struck me that this was the situation I was seeking—a Harlequin Duck in its habitat. So I began making exposures, timing my shutter release to coincide with waves breaking against the rock. Using a fast shutter speed, I finally nailed one particularly strong wave in mid-crash that surrounded the duck with flying water.

Including the habitat in bird photographs offers another plus: the freedom to compose in a more creative way. By its very shape, a frame-filling bird defines the photograph's orientation, that is, whether it is vertical (sometimes called *portrait* format) or horizontal (*landscape* format). A full-frame woodpecker on a tree trunk is hard to fit into anything but a vertical format, whereas a swimming duck best fits horizontally. They're compositional dead-ends. When the bird takes up only a small portion of the

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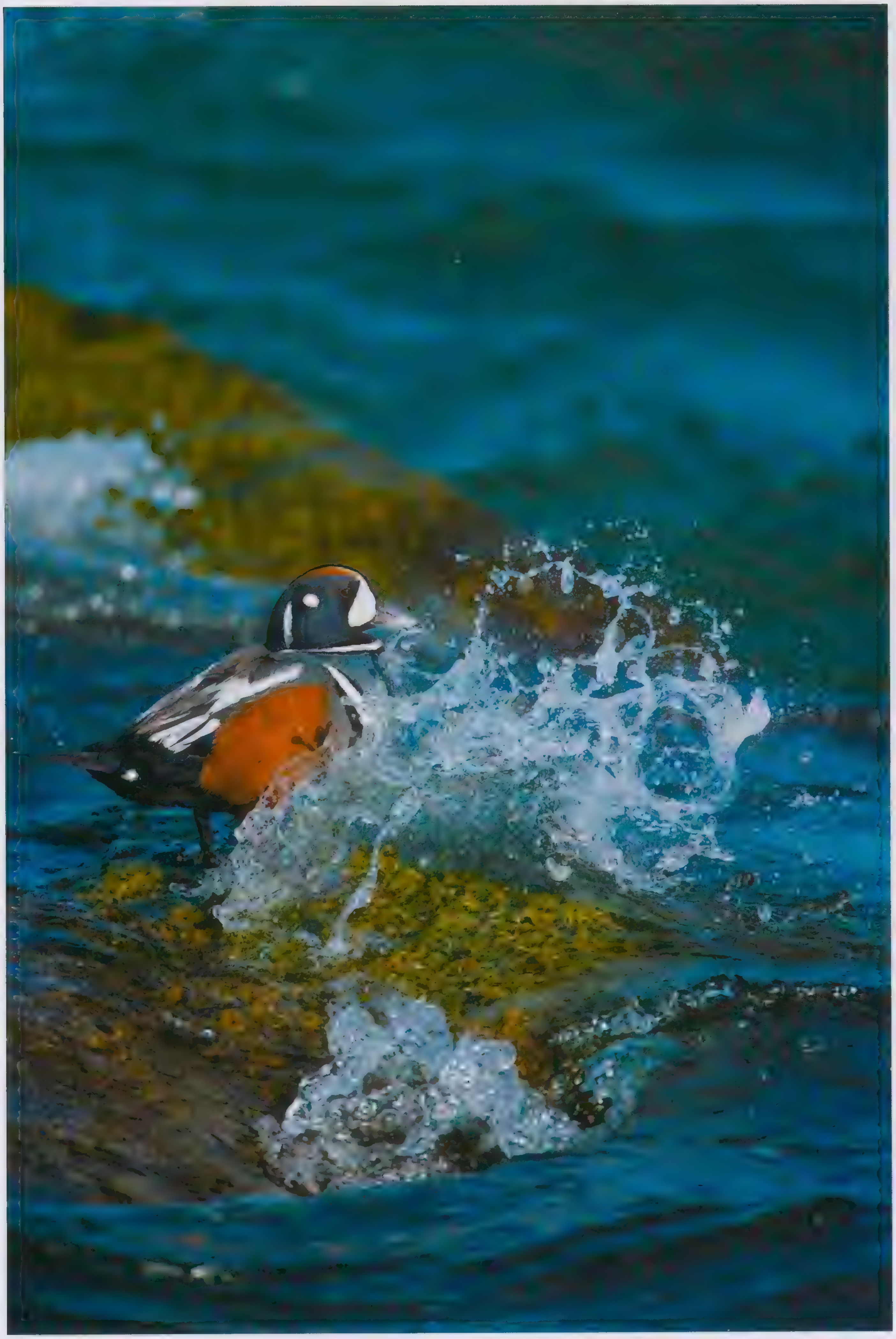

*Most photographers strive to take only tight close-ups of birds, but this picture tells more about the life a Harlequin Duck, keeping his composure as waves crash all around him.*

frame there are no such constraints. Depending on what other elements are present, the image might work well in either orientation. A Yellow-crowned Night-Heron standing straight and tall would best fit a vertical composition, but a more distant view of the bird stalking through a mangrove swamp looking for crabs might look best as a horizontal.

This newfound compositional freedom comes with a challenge, though: the photographer now has to decide where to put the bird. The first thing to remember when the main subject is small is to avoid putting it in the middle of the frame. For a more dynamic design that holds a viewer's attention, compose with the bird off-center. That's what I did when I found a Sora emerging from a California marsh late one winter afternoon. Looking down from a boardwalk, I was struck as much by the pattern and reflections of cattail leaves in the water as I was by the Sora itself. So I composed the frame with the bird off to one side, using the floating cattails and their reflections as a design element.

To help you decide where to place an off-center subject, try applying the *Rule of Thirds.* Using imaginary lines, roughly divide your frame into three in both the horizontal and the vertical planes. Compose so that your bird is located over one of the so-called *power points,* the places where any two lines intersect. It's also best to have the bird facing or moving into, not out of, the frame.

If you can include another element—particularly something meaningful to the bird's lifestyle—as a balance for the main subject, so much the better. Remember, too, that diagonal lines make dramatic designs, so watch for birds perched on diagonal tree limbs and plant stems.

Sometimes nature offers you a stunning landscape in which the individual birds are actually tiny—a flock of birds against an intense sky, a dramatic mountain range, or a beautiful body of water, for instance. Instead of being frustrated because the birds are so distant, try switching to a shorter lens and taking everything in to create a *birdscape.*

When designing a birdscape, follow the same guidelines that apply to traditional landscape photography.

Avoid putting the horizon dead center in the frame. Instead compose with the horizon located about either one-third or two-thirds up from the bottom of the frame (it's that rule of thirds again). Try to use leading lines if they are present, such as those formed by rivers or creeks, to invite the viewer's eye into and through the frame.

Pay attention to framing your birdscape. It's best to include something in the foreground as a natural border. If you're photographing a distant flock of water birds, for example, move around to change your perspective so that your composition avoids having the birds so close to the lower edge that they seem to be about to fall out of the frame. Instead, include a rock or a stand of plants in the lower part of the frame as a compositional anchor.

In the absence of anything better, including a narrow strip of bird-free water below the flock will do the job, keeping the birds contained within the image and strengthening the whole composition.

A telephoto zoom lens, such as an 80-200mm, is a great help for critically framing your birdscape if moving closer isn't possible.

My final piece of advice is to learn as much as you can about bird life history and avian ecology. That knowledge can help you recognize biologically meaningful situations, thereby influencing your decision about what to include or omit from your frame. One winter, I photographed a male Pileated Woodpecker as it excavated for food in a beech trunk. At first I felt frustrated because, no matter where I moved, dead leaves on an adjacent beech sapling partially obscured the trunk near where the bird was working. Furthermore, a polypore fungus growing through the bark threatened to distract attention from the bird.

Then I realized that by including all these elements my photograph represented a complex web of ecological interactions. The fungus had caused the beech's internal decay. The rotting beech wood was infested with carpenter ants, which the woodpecker was exposing with its hammering. Even the dead leaves played a role in identifying the tree species, since beech saplings are unique in that they hold their dead leaves all winter.

Coincidentally, a forestry magazine contacted me a few weeks later searching for a photograph that encompassed these very elements—woodpecker, beech trunk, polypore fungus—for an article about the declining health of beech forests. I was delighted to accommodate them!

So next time you head out to photograph the beauty of birds, don't forget to include their habitat. Birds don't live in a vacuum; they live in and interact with their environment. Showing the bird-habitat relationship in your photographs is a compelling way to help others understand and appreciate the fascinating complexity of the natural world. And your pictures will be a cut above the crowd. ■

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*Marie Read is a freelance photographer based in Freeville, New York, and a frequent contributor to this magazine.*

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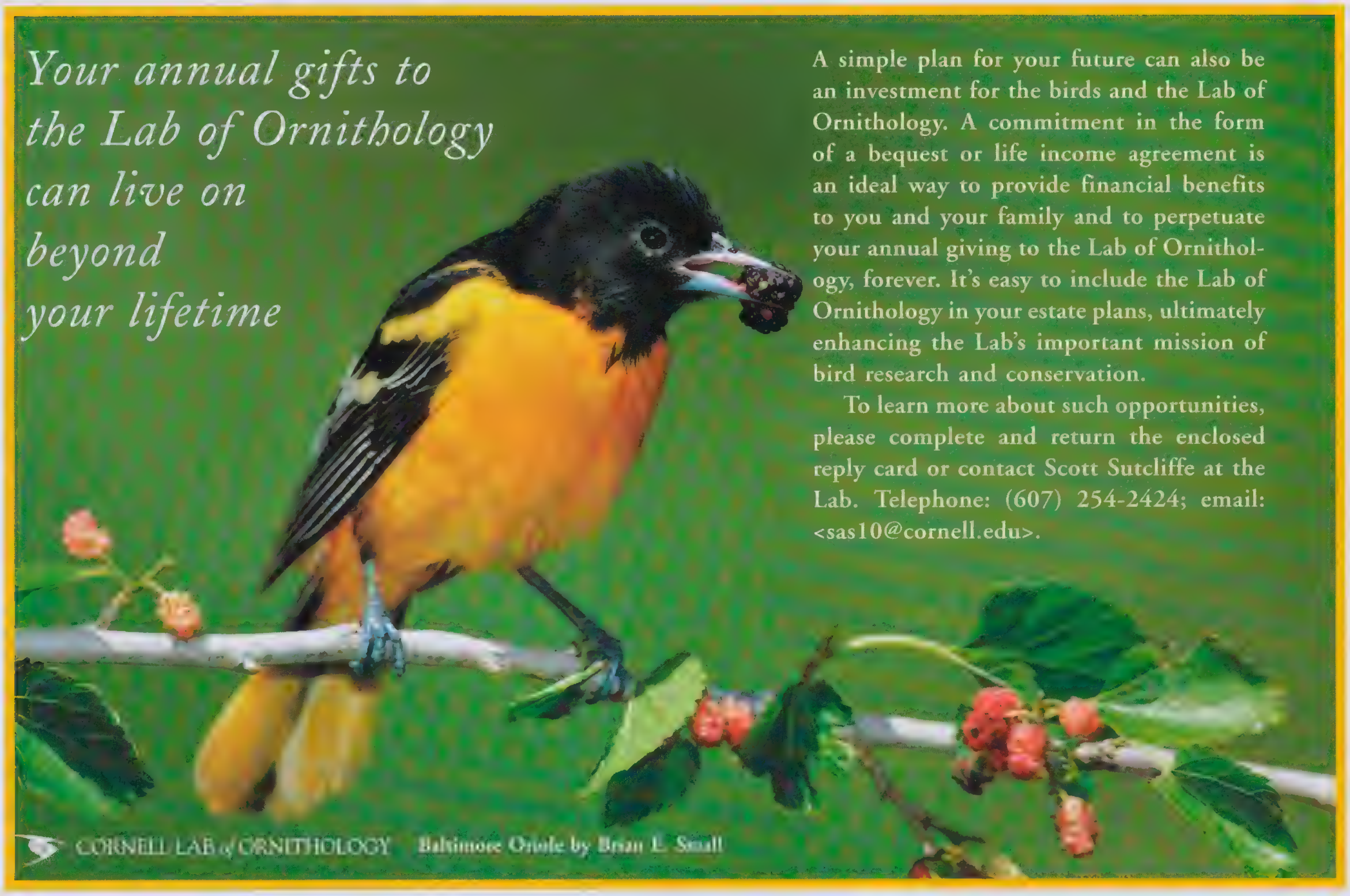
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### *The Catbird Seat*

# A HISTORY OF THE BIG DAY

*by Pete Dunne*

After my archival search, I am brought to conclude that the Big Day turns 100 this year. The earliest record I find for this celebrated birding institution dates from May 13, 1907, when a Dr. Lynds Jones is reported to have recorded 144 species in Oberlin . . .

That is as far as I got with this terminally boring story line. Before you could say Ohio—or more accurately, before I could type "Ohio" because that is where Oberlin is—the phone rang, and the voice of my colleague, Mmm Mmm, advised that a Barnacle Goose was feeding with a flock of Canada Geese on Steven's Street (as the Lister chases, about 25 minutes away).

Otherwise it's a half-hour's drive.

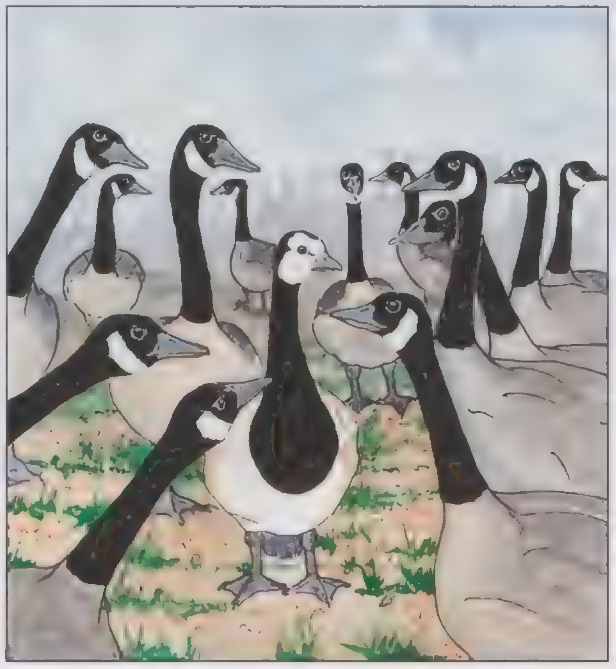
"That's great," I said, wondering, first, how Mmm Mmm knew I would be at work on a Saturday morning, and second, why she called. It is well known that I am a lackluster chaser. When the Brown-chested Martin hit town (second record for North America) I dawdled four days before going to see it. See, I lead a bird walk every Monday in the South Cape May meadows. I figured I could just wait out the weekend crowds and get the bird after my walk. Turned out I saw the martin during the walk.

So I didn't have to chase it!

Instead I had to chase the chasers (i.e., drive over to where everyone was waiting for the martin to suggest a more strategic location).

I think the last bird I really, truly chased was the Double-striped Thick-knee that had taken up golf in Yuma, Arizona, around 1990 (or so). I was spending the week with Paul (Mr. Total Ticky) Lehman. There was, needless to say, never a question but we would go for the bird.

There was also little question that the Record's Committee would grant the sighting junk-bond status, but you have to discuss something while waiting for things like Brown-chested Martins to appear. Record's Committee bashing is a time-honored lister/chaser pastime.



The last bird I sort of chased was the Baikal Teal on Attu in September 2006. I say "sort of" because, after all, I was on Attu. All anybody does on Attu is look for birds someone else has found.

Back to Mmm Mmm and why she called.

"Do you have Ah Hmmm's cell phone number?" she asked.

Now I get it, I thought. I'm serving as a barnacle broker; a chaser chaser.

"No," I said.

"Well if you talk to him tell him to get his gluteus maximus down here."

Not her exact words but close enough.

I returned the phone to its cradle. Put my fingers back on home row. And found myself, curiously, not immediately drawn back into the fascinating history of big-day birding, but instead wondering whether, perhaps . . . Oh, heck, I thought. I've never seen a Barnacle Goose in North America.

But that was only the excuse, because what really appealed to me was the thought of seeing so many members of the Cape May birding block, all assembled in one place at one time. The best thing about hot sightings is the impromptu block parties they spark.

Paul Lehman, Richard Crossley, Michael O'Brien, and Louise Zemaitis would almost certainly be there (providing they were in town). All our associate naturalists. All our local supporters.

Within the hour, birders from all over South Jersey would be lining the street, and before lunch half the birding worthies from the Delaware Valley Ornithological Club and the Urner Ornithological Club (the half that didn't already have the bird for North America) would be racing up. Getting the goose, then getting down to the serious business of discussing the adventure they had getting there. Moving on to the good birds they found last weekend at. . . . Then the story of their recent trip to Brazil. Then news of an apparent first winter Blanky-da-blank at . . .

Twenty minutes later I was standing on Steven's Street. The party was just getting started. It took eight seconds to find the bird. Half an hour to get all the dirt, lobby the members of the State Records Committee present about the manifest legitimacy of the bird, and try to locate just one other person on my cell phone who wasn't already en route.

I was back at my computer by noon.

Now. Does anybody want to hear about the fascinating history of the Big Day?

Thought as much. ■

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# LIVING BIRD

AUTUMN 2007 VOLUME 27 NUMBER 4

## GREETINGS FROM SAPSUCKER WOODS

In this issue we're doing something completely different—publishing a birding travel article about a place that's near and dear to everyone who works at the Lab of Ornithology: Montezuma National Wildlife Refuge (see page 12). We tend to go out of our way to feature places far away from here, in a different state or even another country, to avoid the appearance of a regional bias in our pages. But Montezuma is such a fabulous place, it's time we made an exception.

I've been taking my children to Montezuma since they were toddlers. It was there that they saw their first Bald Eagles and Ospreys, not to mention numerous waterfowl, shorebirds, and songbirds. What better place to introduce people to the beauty of birds? Without Montezuma, our weekly Cayuga Lake Basin bird lists would be paltry indeed.

This refuge is also important because of the innovative measures being taken to improve the habitat, making it more suitable for a wide range of wildlife. The wetlands had become choked with invasive exotic plants such as purple loosestrife, so the refuge managers launched a program of biological controls, using insects to devour the loosestrife, reducing the number of plants by some 90 percent. They also drained the wetlands temporarily and allowed aquatic vegetation favored by many waterfowl species to regenerate. As a result, rare species such as the Black Tern are making a comeback at the refuge.

We invited our favorite local author/photographer Marie Read to cover the story in depth and also to show the beauty of this special place in her photographs. We hope you'll come to Upstate New York sometime and visit Montezuma—and the Lab of Ornithology.

*Tim Gallagher*
*Editor-in-Chief*

12 JEWEL OF THE FINGER LAKES *by Marie Read*
Exploring Upstate New York's spectacular Montezuma National Wildlife Refuge.

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Tracking down rare Northern Bald Ibises in the hinterlands of Ethiopia.

32 AND THE WINNER IS . . .
Announcing the top three pictures entered in the Lab's digiscope bird photography contest.

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Crime spree or hyperbole?

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Cast of characters.

**Cover:** On its autumn migration south, an Eastern Kingbird sits waiting for insect prey to fly past. When the bird reaches its wintering grounds in South America its diet will switch and be composed mostly of fruit. Photograph by Gerrit Vyn.

**Right:** An Osprey hovers above the open water at New York's Montezuma National Wildlife Refuge, searching for fish. Read more about the refuge and its abundant wildlife in the article on page 12. Photograph by Marie Read.

**Back cover:** Rarely seen by day, an Eastern Screech-Owl peers from its roosting spot in a hole excavated by a Pileated Woodpecker. Photograph by Gerrit Vyn.

LIVING BIRD
AUTUMN 2007 VOLUME 27 NUMBER 4

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# Letters

## HAMMERHEADS

Susan Ilka's letter in the Summer 2007 issue of *Living Bird* took me back some 65 years to my first encounter with that phenomenon [of a woodpecker drumming to declare its territory or attract a mate]. At age 12 or 13, I had a morning paper route during which, in spring, I would hear a woodpecker drumming on the gutters of a particular house on our street. Although I didn't know then why he was doing so, I did realize he was not looking for food.

Fast-forward 30 years to the time we put a wood stove in our house: a woodpecker would drum on the metal flue pipe, and the sound would resonate throughout the house.

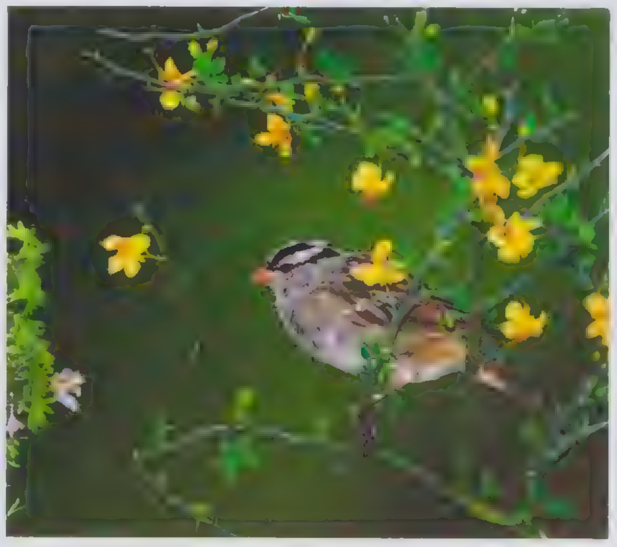
The most interesting description of this behavior that I have read can be found in Don Stap's book *Birdsong: A Natural History* on pages 136-37 where he describes a Red-breasted Sapsucker drumming on a metal trail marker sign found during one of the Lab of Ornithology's sound-recording workshops in California: "The sapsucker's succession of drummed notes with their pauses and shifts in speed sounded just like the first few notes of 'Dueling Banjos.'"

*Woody Thomas*
*Naples, New York*

## MORE ARTICLES ON AMERICAN BIRDS

I'm an old-time birder with a short life list and have been a member of the Lab for eight or ten years. Up until the Spring 2007 issue arrived (today), I had been contemplating writing a complaint letter to you. I had been getting a little disturbed about all the *Living Bird* articles that had to do with birding and science outside the United States and so few about our birds. Not that these articles weren't interesting—they were; it's just that I wanted *more* articles about USA birds. The Spring issue changed all that, and I'm really looking forward to reading it. I recognize that many people want to see non-US birds, so I can understand why you print them.

*Bert Metzger*
*West Bloomfield, Michigan*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## PLANT RECOGNITION

I just received the Spring 2007 issue of *Living Bird.* I am an amateur naturalist with an interest in more than birds, and I have a suggestion: whenever a bird is shown in a photograph with a recognizable plant, would it be possible to identify the plant also? For instance, the back cover shows not only the White-crowned Sparrow but also a clear and colorful view of whatever flowering tree that is (it's something we don't have in Indiana). I think it would be nice to identify it in the caption.

*Liz Day*
*Indianapolis, Indiana*

*Your point is well taken, though we don't currently have the botanical staff to look at every plant in the photographs we publish. The plant in the picture of the White-crowned Sparrow you mentioned is a blue palo verde.*

*The Editors*

We welcome letters from readers. Write to The Editors, *Living Bird,* 159 Sapsucker Woods Road, Ithaca, New York 14850, or send email to <livingbird@cornell.edu>.

# BirdNews

JOHN W. FITZPATRICK

*In Memoriam*

## *Glen E. Woolfenden*

*(1930–2007; Cornell class of '53)*

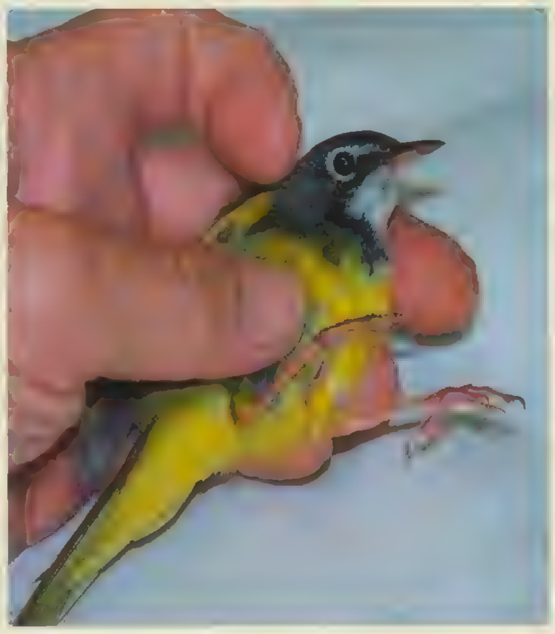
On June 19, 2007, the Lab and I lost a dear friend, and the ornithological world lost one of its towering figures, with the death of Glen E. Woolfenden at the age of 77, from complications following abdominal surgery. Woolfenden was the world expert on Florida Scrub-Jays, having maintained a continuous, intensive study of these endangered birds at Archbold Biological Station near Lake Placid, Florida, since 1969. This project is among the world's most famous long-term studies of a bird population.

Woolfenden was a meticulous field biologist. His scrub-jay research involved color-banding every jay, locating every nest, mapping every territory, and censusing every surviving jay at his research site each month since 1971. Through scores of articles, Glen and his students and coworkers showed that Florida Scrub-Jays live in cooperative, extended-family groups in which young birds remain in the home territory and help their parents rear the offspring of subsequent years. Working closely together since 1972, Glen and I documented the Florida Scrub-Jays' dependence on stunted, fire-maintained oak scrub, a habitat unique to Florida and now mostly eliminated through agricultural, residential, and commercial development. That work helped establish the biological basis for the Florida Scrub-Jay being listed on the federal Endangered Species List, and also helped elevate public awareness of the need to protect remnant tracts of oak scrub habitat. In 1985, the American Ornithologists' Union (AOU) honored the two of us with the William Brewster Memorial Award, their highest research honor, for our book *The Florida Scrub-Jay: Demography of a Cooperative-breeding Bird*. A few years later (1988-1990) Glen served as president of the AOU. Glen also won awards from the International Ornithological Congress, Animal Behavior Society, German Ornithological Society, Cooper Ornithological Society, Wilson Ornithological Society, and Florida Ornithological Society.

Woolfenden was born January 23, 1930, in Elizabeth, New Jersey, and fell in love with birds as a high school student. He attended Cornell University as an R.O.T.C. student, receiving his Bachelor of Science degree in 1953. He discovered professional ornithology by frequenting Arthur Allen's lab at Cornell and through volunteer work at the American Museum of Natural History. For his Masters research at the University of Kansas, Glen compared the social organizations of Seaside and Sharp-tailed sparrows in the salt marshes of New Jersey. He earned a Ph.D. in 1959 from the University of Florida, studying comparative osteology of the world's waterfowl. In 1960 Woolfenden became a charter faculty member of the newly established University of South Florida, where he won numerous awards, including Distinguished Research Professor. After retirement, Glen moved to live within an easy drive of his beloved jays, and he reported for work virtually every day for the rest of his life.

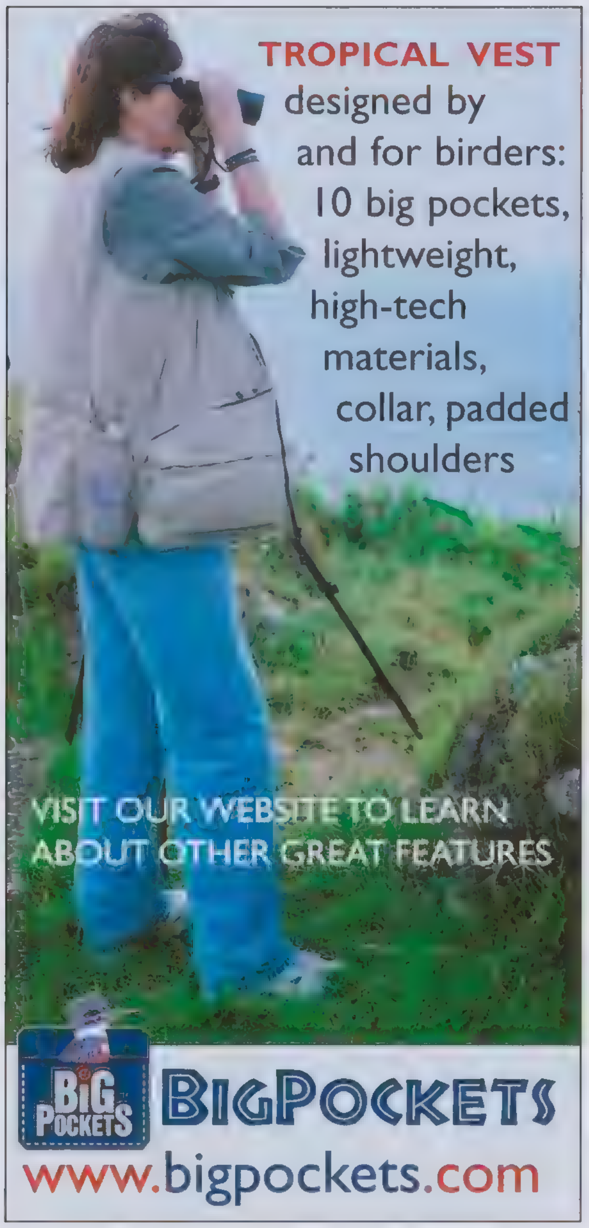
Lively, gregarious, athletic, and witty, Glen led a generation of ornithologists who established birds as important indicators of environmental well-being. He was a formidable presence at social gatherings and faculty meetings, and was a popular and effective public speaker. Glen's unbridled enthusiasm and charisma inspired countless students and friends to devote their lives to the study of birds and nature. He was a demanding mentor, and many of the students Woolfenden advised during his academic career have become influential research scientists at universities, museums, and research centers across the United States and overseas. His dedication to long-term field studies helped establish the importance of such projects in ecology,

## A MYSTERY SOLVED



SANDRA JUNKIN

In the Spring 2007 issue, we published photographs and an illustration of a mysterious hybrid warbler trapped in Upstate New York by bird banders David and Sandy Junkin (see "Name That Warbler," by David Bonter, Irby Lovette, and Benjamin Clock). We invited our readers to guess the parentage of this unique bird. According to DNA analysis, the bird is the offspring of a male Kentucky Warbler and a female Mourning Warbler. To learn more about the bird and the DNA analysis procedure, visit the web site <www.allaboutbirds.org/mystery>.



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Woolfenden is survived by his wife, Janet Woolfenden, three children, three grandchildren, and a healthy, well-managed population of hundreds of Florida Scrub-Jays at Archbold Biological Station. Each jay bears a unique combination of colored leg-rings carefully applied by Glen to document its individual life. A few of these jays will live up to 15 more years, but Glen's study, and its influences, will continue indefinitely.

—*John W. Fitzpatrick*

PETER STETTENHEIM

*In Memoriam*

## *Kenneth Carroll Parkes*

*(1922–2007; Cornell class of '43)*

Ken Parkes was a longtime friend of the Cornell Lab of Ornithology. A life member, he twice served terms on the Lab's Administrative Board. He also generously donated his extensive personal library to the Lab, and his books and journals now make up a significant part of the Adelson Library's holdings.

Ken was born on August 8, 1922, in Hackensack, New Jersey, and spent his entire childhood in New York City. He came to Cornell in the fall of 1939 as an undergraduate. In 1942 he enlisted in the U.S. Army Reserve Corps and was called to active duty in April 1943. He was awarded a Bachelor of Science degree from Cornell in absentia in May 1943.

After his discharge from the army in 1946, Ken returned to Cornell and become a graduate student of Lab founder Arthur A. Allen. He received a Master of Science degree in 1948 for his thesis titled, "A survey of published colored illustrations of North American birds." He retained an active interest in bird illustrations throughout his life. His Ph.D. was awarded in 1952 for his dissertation, "The birds of New York State and their taxonomy."

Ken was a student curator of the Cornell bird collection during his graduate career, contributing many specimens and much information. As a student curator, he attempted to obtain representatives of all of the then-recognized bird families of the world. He nearly succeeded, missing only the Atrichornithidae, the scrub-birds of Australia. (Not even the Field Museum in Chicago had that family at the time.)

Ken joined the staff of the Carnegie Museum of Natural History in Pittsburgh in 1953 and became curator of birds in 1965—a position he held until he retired in 1996.

During his lengthy career, Ken published more than 500 papers. Perhaps most influential was his paper on bird molt, "An approach to the study of molts and plumages," cowritten with Philip S. Humphrey and published in *The Auk* in 1959, with an addition in 1963. The "Humphrey-Parkes system" based the terminology of molts and plumages on the progression of feather change rather than naming them according to whether a bird wore them during breeding season or winter. The breeding/winter format seems obvious enough at first glance, but it quickly runs into problems when applied to many species.

The new method was much easier to apply to a wide variety of birds with different molting strategies, and it made sense out of a very confusing topic. Only recently has any real improvement been made over those ideas.

Ken was a proud Cornell alumnus until the end. He last visited the university in 1999 to attend the American Ornithologists' Union meeting. He had some difficulties getting around because of the effects of a stroke, but he was happy to be back visiting Cornell. Ken is survived by his wife of 54 years, Ellen.

—*Kevin J. McGowan*

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*In the Field*

# CRIME SPREE OR HYPERBOLE?

*by Jack Connor*

## *Examining the supposedly age-old rivalry between Bald Eagles and Ospreys*

If you have been lucky enough to witness a Bald Eagle pirating from an Osprey, you know the chase not only makes a spectacular sequence but also provides one of those "you-should-have-been-there" birding tales you can repeat again and again to torment your friends for months.

Such tales go back a long way. One of the earliest written reports of bird behavior of any kind in North America is Mark Catesby's 1731 blow-by-blow account in his *Natural History of Carolina*: "[The Fish Hawk after diving] seldom rises without a fish: which the Bald Eagle . . . no sooner spies, but at him furiously he flies: the Hawk mounts, screaming out, but the Eagle always soars above him, and compels the Hawk to let it fall; which the Eagle seldom fails of catching before it reaches the Water. It is remarkable, that whenever the Hawk catches a Fish, he calls, as if it were, for the Eagle; who always obeys the call, if within hearing. The lower parts of the Rivers and Creeks [of North Carolina] near the sea abound most with these Eagles and Hawks, where these diverting contests are frequently seen."

In 1811 Alexander Wilson described the pursuit as he had observed it on the New Jersey shore: "[The Fish Hawk] struggling with his prey and mounting in the air with screams of exaltation . . . are the signal for our hero, who . . . instantly gives chase . . . displaying in these encounters the most elegant and sublime aerial evolutions. The unencumbered eagle rapidly advances and is just on the point of reaching his opponent, when, with a sudden scream, probably of despair and honest execration, the latter drops his fish. The Eagle . . . descends like a whirlwind, snatches it . . . ere it reaches the water, and bears his ill-gotten booty silently away to the woods."

A. C. Bent in his *Life Histories of North American Birds of Prey* (1937) includes piracy as one of the three reasons the Bald Eagle should not have been chosen as our national emblem: "Its carrion-feeding habits, its timid and cowardly behavior, and its predatory attacks of the smaller and weaker Osprey . . . certainly do not exemplify the best in American character." He quotes mugging reports from several of his correspondents and concludes, "The Osprey is systematically robbed, as nearly every observer or writer has noted. . . . Sometimes the [chase] is quite prolonged, but rarely does the Osprey escape."

In his own 1937 compendium, *Bird Studies at Old Cape May*, Witmer Stone summarizes similar accounts from local observers and adds a fable provided by a South Jersey trapper: "The Eagle years ago agreed to show the Fishing Hawk how to build a nest if the hawk would keep him supplied with fish. After receiving the desired information, however, the hawk failed to keep his end of the bargain, so henceforth the Eagle made a practice of . . . robbing the Fish Hawk every time he found him carrying fish."

When I first took up birding in the 1970s in Florida, several local veterans liked to talk about the piracies they had witnessed—in stories that might have been (I realize now) spiked with a little folklore themselves. "Did you ever see one eagle force the hawk to drop the fish and a second eagle swoop in before it hit the water and take it from the first?" Of course! Happens all the time.

Have you ever seen the fish hawk circle around while the two eagles are fighting and steal his catch back after the second one drops it?"

In four years of living on a lake outside Gainesville, where Ospreys were numerous and eagles not hard to find, I witnessed only two or three confrontations and just one from start to finish—when an eagle forced a screaming Osprey to release his fish, then swooped to the surface to snatch it just before a string of crows, pursuing the pursuit, beat him to it. The Osprey looped back over the lake without stopping for a rest, apparently determined to redeem the loss as quickly as possible.

Since moving to New Jersey 30 years ago, I haven't seen a single Bald Eagle/Osprey piracy that I remember. This might simply be a sign that I don't get out enough, of course. Or maybe it's a consequence of the fact that we have fewer raptors here than Florida has. Each species has staged a strong comeback from the DDT years. Ospreys now number more than 400 nesting pairs in the state, and eagles more than 50 pairs—but perhaps piracy occurs regularly only where both are truly abundant. New Jersey certainly has fewer Bald Eagles and Ospreys than were present in Wilson's time in the early 1800s or Stone's in the early 1900s.

Another explanation seems worth considering, however: could Bald Eagles robbing Ospreys be one of those phenomena—like sharks attacking surfers or rattlesnakes killing dogs—that is more apparent than real? It happens occasionally, in other words, but much less frequently than stories suggest.

Both raptors feed on fish—the

MIGUEL LASA

*A juvenile Bald Eagle pursues an Osprey, trying to steal the smaller bird's catch. This may be a much less common occurrence than many birders assume.*

Osprey exclusively—and their similar physiques and open-water hunting methods, similar nesting behaviors, and nearly identical breeding ranges in North America (up both coasts and across Canada to the tree line in the Alaskan interior) seem ingredients for an ecological rivalry. Several key adaptations make the smaller bird the better fisherman: superior hovering ability; reversible toes and barbs on the pads of the feet (providing a better grip on slippery fish); closable nostrils; and an oily, more waterproof plumage, enabling deeper dives. Ospreys catch fish with swift, spiraling descents and lots of splash. They sometimes go up to their necks in the water. Bald Eagles prefer dead and dying fish found on shore or floating near the surface. When they do hunt live fish from the air, they generally approach in slow, shallow loops and only skim the water, as if reluctant to get themselves wet above the legs. Eagles also pursue other prey, of course, including muskrats, rabbits, turtles, coots, ducks, geese, and herons, most often in slow patrols searching for the sick, wounded, or dead. All of this seems an ideal situation for piracy, when the bigger, less-skillful fisherman encounters the smaller one with a capture dangling so obviously below him. The fish has already been wounded; and the heavier it is, the more it's a burden—if the Osprey is far from shore, he will be hard-pressed to escape before he is overtaken.

The energy economics of piracy (kleptoparasitism) are complicated, but one fundamental truth noted in all the literature is that stealing food must involve less cost and/or supply more reward than collecting it elsewhere. Could it be that eagles generally find chasing Ospreys not worth the trouble? Bald Eagles can fly at high speed when they must, but it costs them calories—and Ospreys do not surrender their catches without an extended chase. Perhaps crime doesn't always pay?

I find some negative data in support of that possibility (and some solace for my 30 years of non-sightings) by noting that Witmer Stone himself seems never to have witnessed a successful Bald Eagle-Osprey piracy in his many decades of careful, dedicated observations in New Jersey and that at least two of his correspondents reported observing at least as many failures by the eagle pirates as successes. "Whether the Eagle's success is not what it was in times past," he writes, "or whether we have inferred from the graphic accounts of the older writers that he was more universally successful, I do not know."

Yves Prevost studied Ospreys and Bald Eagles on their breeding grounds in Nova Scotia for more than 500 hours a season over two years (1975 and 1976) and reported in *The Auk* ("Osprey-Bald Eagle Interactions at a Common Foraging Site," April 1979) that he witnessed just 15 attempted piracies, only two of which were successful. "The consequences of food-robbing were minimal to the Ospreys:

only 2 of the 1,793 captures were lost because of Bald Eagle attacks, which was less than the number of fish dropped accidentally."

John Ogden studied the two species in Florida Bay in Everglades National Park over seven nesting seasons, 1968 to 1974, a period when the area hosted more than 200 Osprey nests and 25 Bald Eagle nests. In an article entitled "Effects of Bald Eagle Territoriality on Nesting Ospreys" (*Wilson Bulletin*, 1975), Ogden carefully details tensions and chases between the two species, but dismisses piracy as irrelevant in a single line: "I exclude from this discussion on interspecific conflicts where eagles harass Ospreys to steal their fish, as I saw nothing in this behavior to suggest that it related to changes in Osprey nesting."

> *Could Bald Eagles robbing Ospreys be one of those phenomena—like sharks attacking surfers or rattlesnakes killing dogs—that is more apparent than real? It happens occasionally, but much less frequently than stories suggest.*

I would be very interested in the opinions of *Living Bird* readers (send emails to livingbird@cornell.edu). What are your experiences and thoughts? When, where, and how often have you seen these chases? And how often are they successful? Is piracy as common as Catesby, Wilson, Bent, and other sources suggest, or is your experience more like Stone's and Prevost's? I look forward to hearing your views and also, of course, any "you-should-have-been-there" stories you would like to share. ■

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# JEWEL *of the* FINGER LAKES

## *Exploring Upstate New York's Montezuma National Wildlife Refuge*

*Text and Photographs by Marie Read*

BHL

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*On the previous spread: against a backdrop of the Finger Lakes' famous autumn colors, a flock of Canada Geese takes off from a marsh on an October morning at Montezuma National Wildlife Refuge. Periodic draining of the wetlands (below) is essential for keeping the habitat productive, maintaining adequate food and shelter for the refuge's marsh birds and other wildlife. In the foreground are tracks left by heavy earth-moving equipment during the construction of new wetlands around the refuge visitors' center.*

At the northern end of Cayuga Lake, the longest of New York's Finger Lakes, is a striking juxtaposition of humanity and the natural world. The New York Thruway, teaming with cars and trucks on their busy way between Buffalo and Syracuse, is hard to ignore. Yet two of the state's most endangered birds can be found in the wild marshes along both sides of the thruway. Climb the tall observation tower at Tschache Pool and soon the noise of the highway traffic fades into the background as you scan the vast wetland, anticipating a glimpse of a Bald Eagle or a Black Tern. Welcome to Montezuma National Wildlife Refuge.

Montezuma has long been a popular birding destination in central New York, attracting bird watchers from local and regional clubs as well as budding ornithologists on field trips from area colleges. Now the refuge is getting a facelift. Thanks to bold management strategies and exciting new construction projects, Montezuma promises to be better than ever, not just for wildlife but for people too.

The first sign that something's up strikes you as you approach the Montezuma visitors' center. Late summer 2007 found an assortment of serious earth-moving equipment at work there. By the fall completion date, 25 acres of shallow pools and mudflats will surround the visitors' center, replacing a once-barren field and bringing birds and people face to face. Even as the construction was beginning earlier in the year, local birding chatlists were abuzz with anticipation of the shorebirds that soon would be far easier for birders to see.

It's all part of a commitment to combine ecotourism with landscape-level habitat restoration. "We're strong on providing watchable wildlife," refuge manager Tom Jasikoff tells me. Brimming with enthusiasm about the new project, he adds, "I'm sort of the visionary here," admitting that he likes to "push dirt, not paper."

One of a string of habitat oases along the Atlantic flyway, Montezuma is an important staging, feeding, and resting area for large numbers of migratory birds—an estimated one million pass through the Montezuma Wetlands Complex each year. Established in 1938, it was originally managed for waterfowl, but over the years management objectives have broadened to include shorebirds and songbirds as well as wading birds, ducks, and geese.

Fall is perhaps the most beautiful season to visit, and certainly the best time of year to see the impressive numbers of waterfowl that have made the refuge famous. By mid-October, the marshes are fringed with brilliant red and orange maples, and chilly mornings can

seem magical as flock after honking flock of Canada Geese take flight through the mist, heading out to feed in the surrounding fields. The peak numbers of Canadas often exceed 50,000 as November approaches. Up to 100,000 Mallards and more than 25,000 American Black Ducks are joined by numerous Wood Ducks, Gadwalls, American Wigeon, and other dabblers. Diving ducks such as Canvasbacks and Redheads are often seen, as are smaller numbers of Buffleheads, Ruddy Ducks, and Common and Hooded mergansers. As fall progresses the flocks become predominantly white, with swirling blizzards of Snow Geese. Last to linger are the Tundra Swans—flocks of 1,000 have been recorded there, thrumming through the air on giant wings.

To experience the waterfowl migration spectacle, visitors often go first to the observation tower overlooking the main pool to get the big picture. The three-and-a-half-mile wildlife drive offers some closer viewing. Fall 2007's waterfowl experience promises to be more spectacular than usual, but to understand why you would have had to visit the refuge back in late July, as I did. A stunning sight greeted me—the main pool had not a drop of water in it, only a vast, lush carpet of green vegetation. It was smartweed just going to seed, a favorite natural food for waterfowl that refuge manager Jasikoff describes as "ice cream for ducks." In late spring, the main pool was drained, or "drawn down," for the first time in seven years, he says. Before that, the pool had not been drawn down since 1980.

*"We're strong on providing watchable wildlife," refuge manager Tom Jasikoff tells me. "I'm sort of the visionary here," admitting he likes to "push dirt, not paper."*

The marshes at Montezuma were restored long ago by constructing perimeter dikes that allow the refuge to manage and control water levels. Water levels in the impounded pools are manipulated to provide a mix of open water, underwater plants, and emergent vegetation (rooted in underlying sediment but with leaves and stems above water). Occasional draining mimics the drought that periodically affects natural marshes, essential for maintaining productivity and sustaining suitable habitat for a variety of wildlife.

Yet the main pool had been kept at a high water level for many years to drown the purple loosestrife, an introduced invasive weed. Under constant high water conditions, though, feeding muskrats eventually bring down the cattails and other emergent plants, opening up the marsh so that it more resembles a lake than a marsh. This open-water stage, with little submerged vegetation and a deep layer of unconsolidated organic sediment, is at what refuge managers consider to be the final stage of the emergent marsh cycle. It has water but lacks food. Montezuma's managers must now lend nature a helping hand to keep species diversity from declining.

*Normally an elusive marsh dweller, the American Bittern (above) can sometimes be quite visible at Montezuma as it hunts for prey along the shallow ditches close to the wildlife drive.*

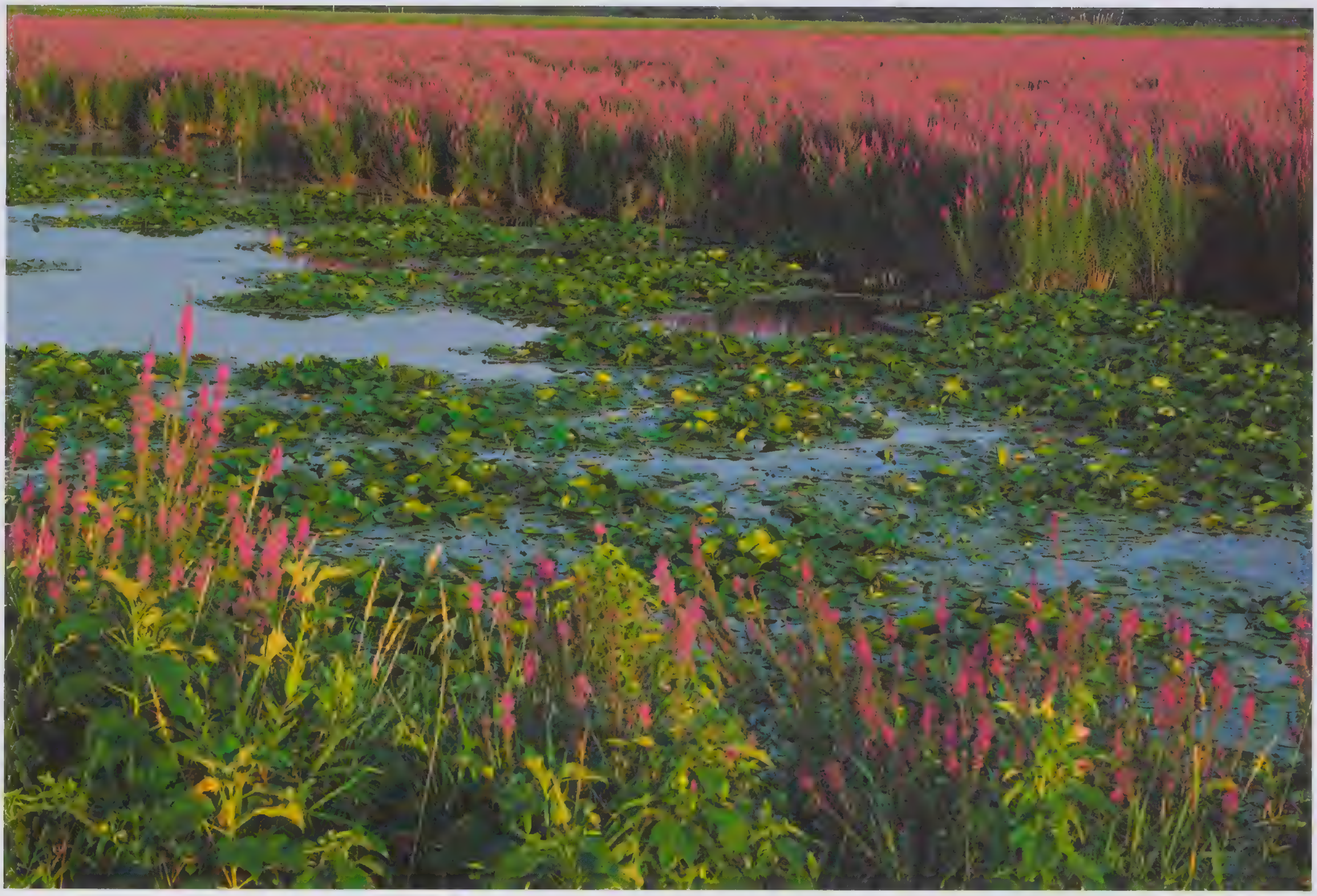
"When an emergent marsh becomes mainly open water, it is no longer suitable habitat for the waterfowl and other wildlife dependent on the marsh for resting and nesting cover and food," explains refuge biologist Linda Ziemba.

"To keep the cycle going, we periodically drain our marshes, exposing the soil, thereby allowing the seeds in the muck soil to germinate."

In time for the fall migration, the managers needed only to add water again and *Voila!*—an avian cafeteria.

Jasikoff agrees that without human intervention, bird diversity in Montezuma's wetlands would decline. Since Europeans first settled this area, "the natural environment here has been drastically altered, and the hydrology has been interrupted," he tells me. Management does what nature used to do, keeping the wetlands productive.

Combating the beautiful but deadly purple



*Combating the beautiful but deadly purple loosestrife has been an essential component of the management plan – probably the main reason the state-endangered Black Tern is making a comeback.*

*Purple loosestrife (above), an aggressive, introduced weed, had replaced much of the native marsh vegetation at Montezuma by the 1990s, leaving the wetlands less suitable for many species of wildlife. But a biological control program using the plants' natural insect enemies (right) has significantly reduced the loosestrife population and may be responsible for a rebound in the number of Black Terns at the refuge (right).*

loosestrife has been an essential component of that management plan, which is probably the main reason the state-endangered Black Tern is making a comeback. During the 1950s, Montezuma supported a breeding population of 2,500 of these graceful marsh dwellers, with 500 young estimated to have fledged in 1958 alone. In the following decades, the numbers of breeders dwindled, until no terns nested on the refuge between 1987 and 1993. That loss coincided with the loosestrife invasion, which choked out the native marsh plants and left dense monotypic stands unsuitable as cover, food, or nest sites for most marsh birds. To make matters worse, purple loosestrife stalks are rigid and don't decompose quickly, so they are a poor substitute for the pliable, decaying cattail leaves used by many marsh breeders—Marsh Wrens, Pied-billed Grebes, rails, and bitterns, as well as Black Terns—to build their nests.

Black Terns are picky about their breeding habitat. Loosely colonial, they prefer shallow

*When habitat conditions have been right, cattail stands next to the wildlife drive have supported breeding Marsh Wrens that entertain observers with their nest-building antics and merry rattling songs.*

marshes with a mix of open water and short, sparse emergent plants in which to nest, a marsh structure that Montezuma lacked in the 1990s. Terns may build on a muskrat house or simply pull together a floating mass of dead cattail leaves and other plants to form a floating nest just a few inches above shallow water.

It was a bold biological control program that finally got the better of the loosestrife. Spearheaded by Bernd Blossey at Cornell University's Department of Natural Resources, the program enlisted the help of the weed's natural insect enemies from Europe: first some leaf-eating beetles and later root-mining weevils. After undergoing rigorous testing in enclosures to confirm that there was little risk of the insects expanding their diet to include native plants, 20,000 of the beetles were released in the refuge in summer 1997, and eventually a self-sustaining population built up. The beetles chew holes in the plant's leaves—"It looks like someone shot it with a shotgun," says Jasikoff—while the weevil larvae attack the root system. Eventually the plant is so stressed that, while it may sprout, it fails to flower or produce seed.

A decade after the initial release, the results are impressive. Montezuma's marshes once glowed with a mass of purple blossoms by late summer—gorgeous, but the sign of a dying marsh. Now the loosestrife is down to less than 10 percent of its former area thanks to what Jasikoff calls the "army of bugs doing their job." Montezuma was one of the first wildlife refuges to use this host-specific insect control method to combat loosestrife. Now it is used by land managers to control the weed in many other states and Canadian provinces.

Black Terns have finally started breeding again at Montezuma. A 2006 census found 16 adult Black Terns summering on the refuge, with two confirmed and six probable nests. With 2007 numbers up—34 breeding adults, four confirmed and 13 probable nests—there's reason for cautious optimism.

Montezuma is one of the few places in New York State where birders can consistently see

*Usually the vista below would be a vast expanse of water, stretching almost to the horizon. Instead, during the summer of 2007, refuge managers drained the pool to grow smartweed—a native plant and favorite food of many ducks. By fall the drained pool would be reflooded, making the food accessible to the large numbers of waterfowl that pass through the area on migration.*

Black Terns, and visitors eagerly anticipate their arrival in late April or early May. Currently, Tschache and May's Point pools are the best viewing spots, each at a different stage in the wet-dry marsh management cycle, with an ideal mix of shallow water and emergent vegetation.

With its diverse habitats, the refuge has great birding all year round, although the wildlife drive and visitors' center are closed from December through March due to ice and snow during the area's harsh winters. Spring in central New York comes famously late, and waterfowl migration happens more quickly than in fall. Held back by the slowly retreating ice at the end of Cayuga Lake, the ducks and geese finally pour into the refuge. By April, Redheads and Ring-necked Ducks by the thousands cover the main pool, where observers can watch them courting in small groups, males performing their spectacular head-throw displays to impress the females. In the channel hugging the wildlife drive, brilliant Wood Ducks pair off and Northern Shoveler couples circle each other, dabbling their bills through the water in a delightful feeding dance. Soon, though, the huge flocks of waterfowl have rushed onward to their northern breeding grounds.

By late April the marshes are full of activity. Red-winged Blackbirds are easy to see, clinging to cattail heads, with vivid shoulder patches outspread and blaring calls. Pied-billed Grebes dive for fish and call to each other with nasal barks. Scanning the marsh edges may turn up a Virginia Rail or a Sora, which are more often heard than seen before they slip away through the marsh.

When habitat conditions have been right, cattail stands next to the wildlife drive have supported breeding Common Moorhens, American Coots, and Marsh Wrens, the latter entertaining observers with their nest-building antics and merry rattling songs. One recent spring, birders thrilled to the close view of a rare Least Bittern, which was seen regularly in one area. Canada Geese are ubiquitous, sometimes nesting precariously at the edge of the drive, trusting that the slowly passing vehicles will give them a wide berth. Human visitation in spring rivals that in fall, as people from near and far arrive to enjoy Montezuma's annual show of goslings on parade.

To avoid disturbing the wildlife, visitors are required to stay in their vehicles while on the wildlife drive, except in designated viewing areas. This may seem restrictive, but cars make great blinds, so people can watch and photograph birds going about their natural activities. In spring 2006, for example, an American Bittern made a daily showing in a shallow ditch adjacent to the drive. Onlookers in cars had eye-poppingly close views of this normally elusive marsh dweller as it stalked through the vegetation in search of frogs. That same year a pair of Northern Harriers nested only 50 yards from the wildlife drive. Although the actual nest wasn't visible, patient bird watchers had rare views of these handsome raptors performing their breeding activities—first the female bringing nest material, and, later in the summer, the male provisioning his incubating mate with food during dramatic aerial food exchanges. It's unlikely that either species would have tolerated observers on foot.

Other raptors get plenty of airtime, too. Montezuma's best-known conservation success was to establish breeding pairs of Bald Eagles at a time when the species was listed as federally endangered. The Montezuma program, started in 1976, was the first of its kind in North America. Over a five-year period, the New York State Department of Environmental Conservation released 23 young Bald Eagles at

*A male Marsh Wren belts out its rattling song while clinging to a spent cattail stem. A common breeder throughout the marshes, the species occasionally nests right beside the wildlife drive, allowing birders to observe its activities closely.*

the refuge using a falconry technique called "hacking," in which young raptors are placed in artificial nest platforms and given food without being able to see the humans who provide it; the birds eventually begin hunting for themselves and disperse.

From these early beginnings came a great success story. Many of the eagles thrived and, when they reached maturity at five or six years of age, began trying to nest. After several years of failed breeding attempts, two pairs of eagles produced young in 1994. In 1999, eagle nests on the main pool, Tschache Pool, and Mud Lock (just outside the refuge) produced a total of 11 young. Now several pairs of adult Bald Eagles nest around the refuge, and they and their young are a regular sight. The Bald Eagle was removed from the federal Endangered Species List this year.

Several pairs of Osprey also nest on and around the refuge, particularly on power pylons along busy Route 5/20 and Route 89, where their antics sometimes slow traffic. Road-birding can be somewhat risky on the fast-paced thoroughfares bounding the refuge. For a safer option, Ospreys can usually be seen at Tschache Pool or the main pool, where they sometimes hover dramatically, watching for fish in the water below. A parking lot at the North Spring Pool overlooks an Osprey nest platform, outfitted with a nest-cam that relays images of the Osprey family to the visitors' center, where bird watchers can enjoy close-up views.

Summer is probably the quietest time at the refuge. Many birds are less visible as they busily raise their young, hidden in the dense marsh vegetation. Furthermore, certain wetlands may be drawn down on a rotational basis. But by late summer, refuge managers begin the slow process of reflooding the pools to prepare for the influx of waterfowl later in the fall.

The first birds to benefit are shorebirds, many of which are already winging their way south in late July and early August. Mudflats and shallow water at May's Point Pool and Benning Marsh provide excellent feeding habitat for these migrants, readying them for the long journey ahead. Between them these two locations have accommodated more than 20 species, representing nearly every shorebird that migrates through central New York. Both places have overlooks so visitors can leave their vehicles to scope the mudflats. The five-acre Benning Marsh, constructed in 1991, offers closer views and has optimal light direction for viewing in the morning, whereas May's Point Pool is best in the afternoon.

Montezuma is considered one of the most

*Foraging along the edge of a marsh, an elusive Virginia Rail captures a dragonfly nymph.*

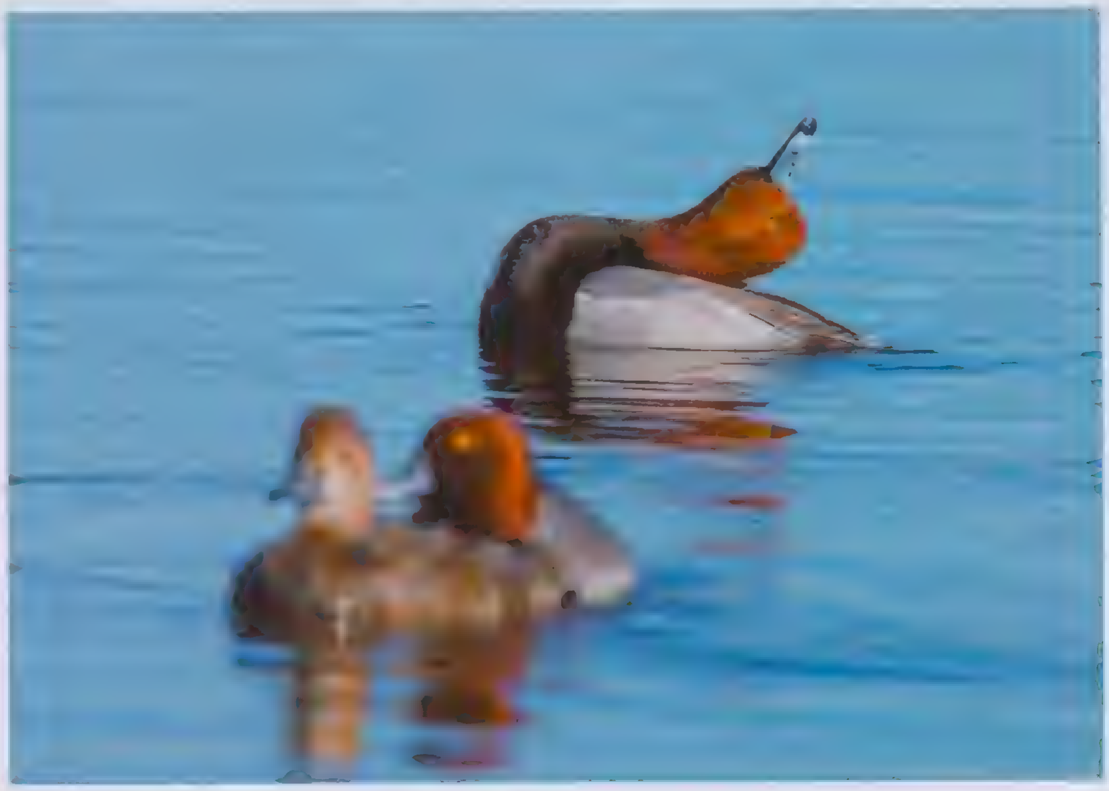
critical inland migratory stopover points for shorebirds in the eastern United States. Visitors often see Semipalmated and Least sandpipers, Greater and Lesser yellowlegs, and both dowitchers, their numbers starting to build by early August. Less common shorebird visitors include Hudsonian Godwit, Stilt Sandpiper, American Golden-Plover, Black-bellied Plover, and both Red-necked and Wilson's phalaropes. The excitement level of onlookers can spike dramatically when the occasional Peregrine Falcon or Merlin buzzes through the shorebird flocks looking for an easy meal, scaring them up into swirling masses.

Songbirds use the marshes too. Huge flocks of Tree Swallows gather in late summer, often funneling like tornado spouts at dusk as they head to the cattails to roost. Tree Swallow numbers range into the hundreds of thousands, augmented by many Barn, Rough-winged, and Bank swallows plus smaller numbers of Cliff Swallows and Purple Martins. These vast gatherings persist into late September, dwindling when the swallows start heading south. Bobolinks on migration roost in the marshes in August, and October is famous for its swirling masses of Red-winged Blackbirds and Common Grackles.

Hiking the refuge's walking trails in spring or summer is a good way to appreciate the wealth of migratory songbirds nesting at Montezuma. The Esker Brook Trail leads visitors through a variety of wooded habitats good for warblers, vireos, and flycatchers. The Oxbow Trail, a short loop that crosses grassland, is home to Savannah Sparrows in summer and Horned Larks and American Pipits during migration. The more adventurous may want to try birding Howland Island, north of the main refuge, which is part of the Northern Montezuma Wildlife Management Area. The 3,500-acre state-owned island, bounded by the Seneca River and the Erie Canal (with nonmotorized access only), contains a mix of hardwood stands, grasslands, agricultural fields, and managed marshes. Among the 220 species of birds recorded there is a small nesting population of Cerulean Warblers—a species in serious decline throughout its range.

You don't have to go that far to enjoy songbirds, though. The cottonwood stand between the visitors' center and the main observation tower is home to nesting Baltimore Orioles, Carolina Wrens, House Wrens, and Blue-gray Gnatcatchers. And the Purple Martin house next to the visitors' center shouldn't be missed.

Montezuma's main refuge is just part of a far bigger picture—the Montezuma Wetlands Complex, administered jointly by the U.S. Fish and Wildlife Service, the New York State Department of Environmental Conservation, and Ducks Unlimited, Inc. This huge wetland conservation project aims to protect, restore, and enhance wildlife habitat, as well as provide recreational opportunities and education for people. The complex encompasses about 36,000 acres in the surrounding Upstate New York counties and includes the federal Montezuma National Wildlife Refuge, the state-owned Northern Montezuma Wildlife Management Area (including Howland Island), and lands owned by conservation groups, farmers, and other private landowners.



*Hoping to impress a female swimming with another male nearby, a male Redhead performs his dramatic "head-throw" courtship display in spring. Thousands of these and other species of duck pass through Montezuma in spring and fall, en route to and from their northern breeding grounds.*

For all it has already achieved, Montezuma has still more exciting plans for the future. In the works is a multimillion-dollar project to improve the somewhat unproductive dry marsh at the north end of the main refuge. Manager Jasikoff proudly unrolls an impressive chart. He points out where a new system of pools will be constructed south of the wildlife drive where it currently runs westward parallel to the New York State Thruway. The new wetlands and the wildlife they'll attract will be easy to view from the thruway, just a few yards beyond the refuge fence, where there will be a scenic pull-off with a parking area and an observation platform. Now, instead of simply zipping past, thruway travelers will finally be able to enjoy what Montezuma has to offer—the chance to stop, relax, and take in the beauty of nature during their journey. And rather than stay central New York's best-kept birding secret, Montezuma will get the recognition it so justly deserves. ■

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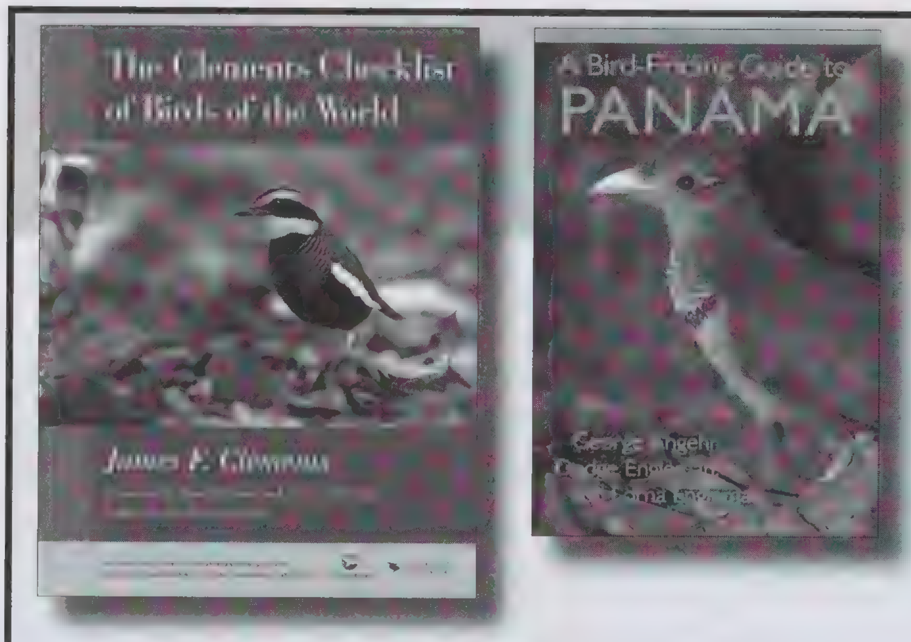
*Marie Read is an author and photographer based in Freeville, New York, not far from the Lab of Ornithology. Visit her web site at www.marieread.com.*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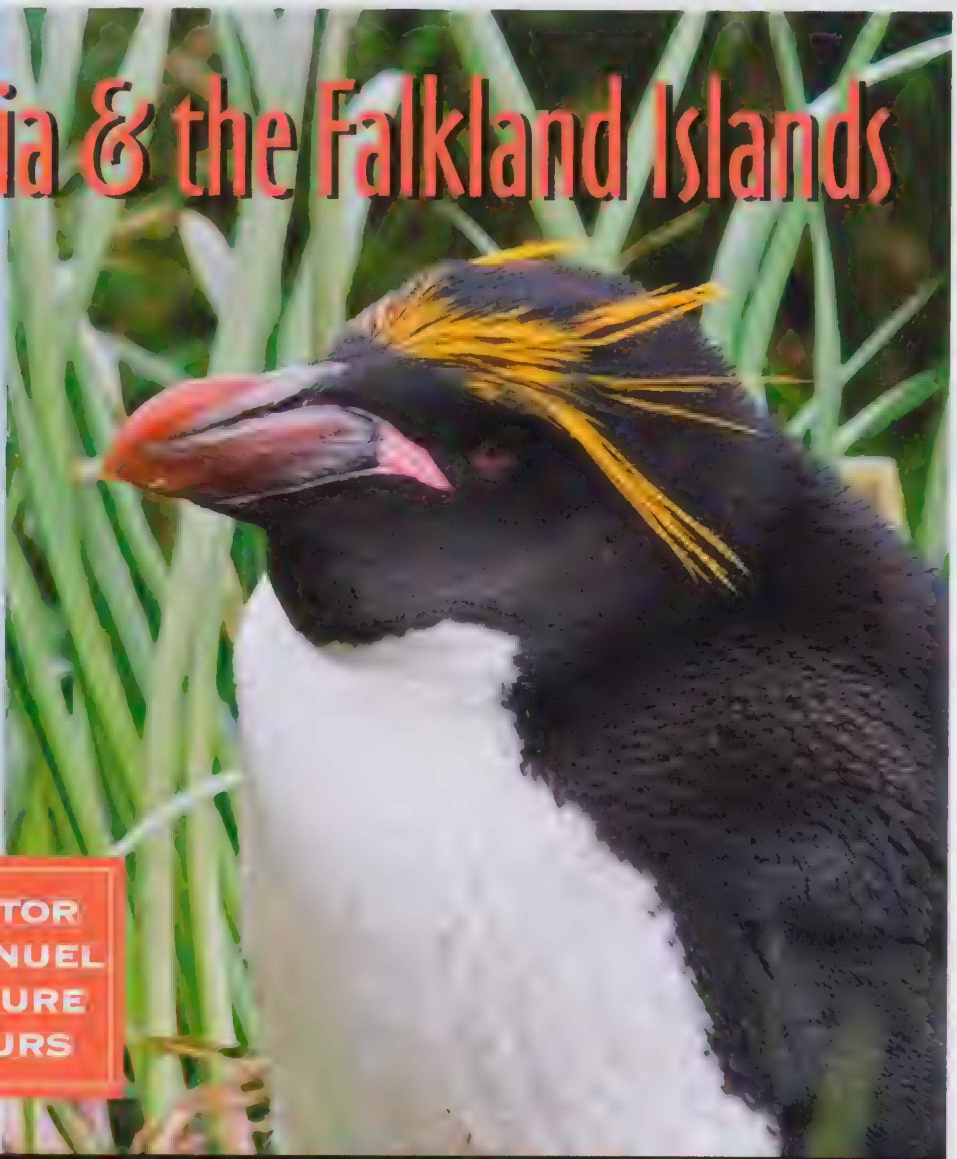
Macaroni Penguin © Greg Lasley

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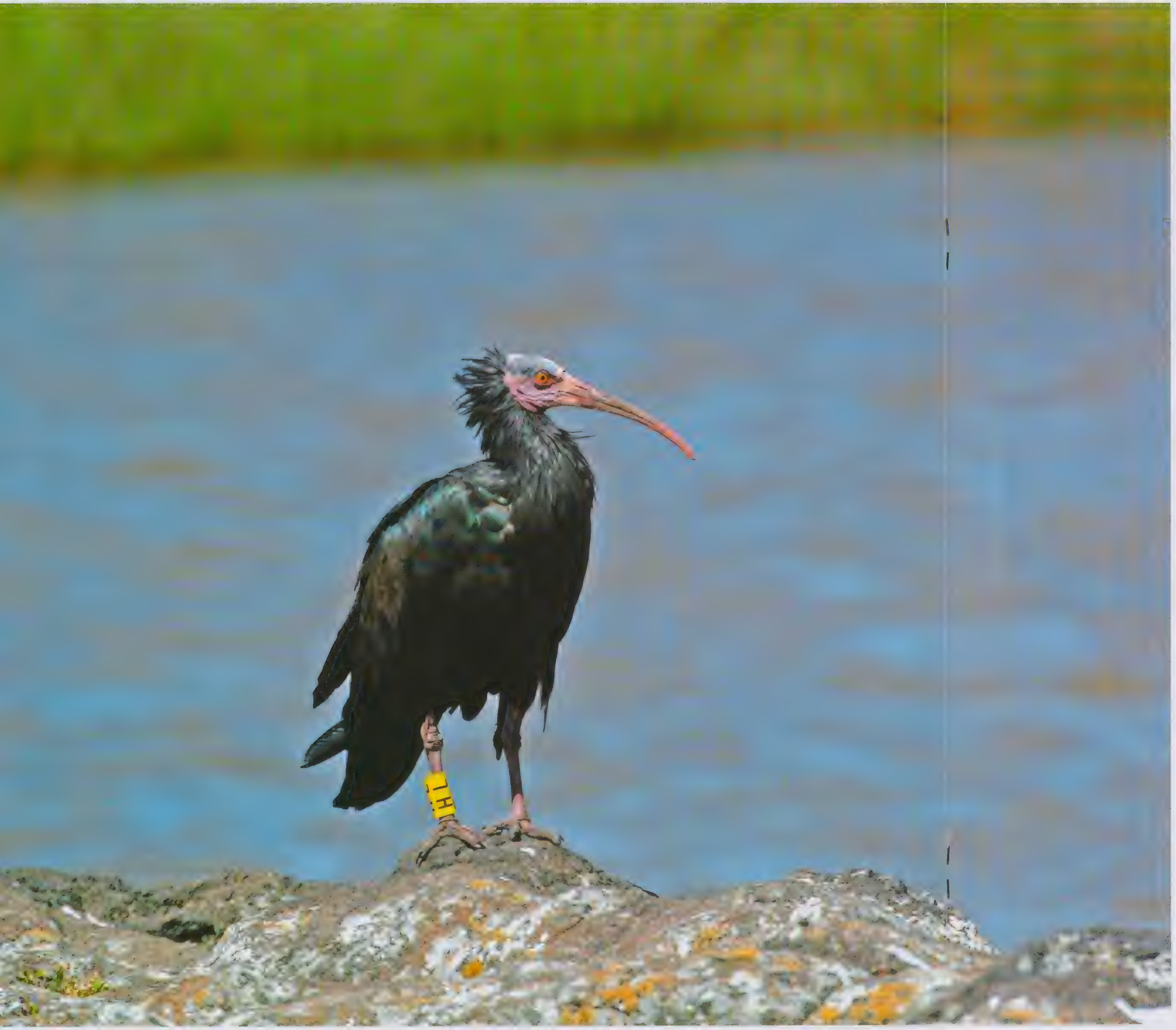


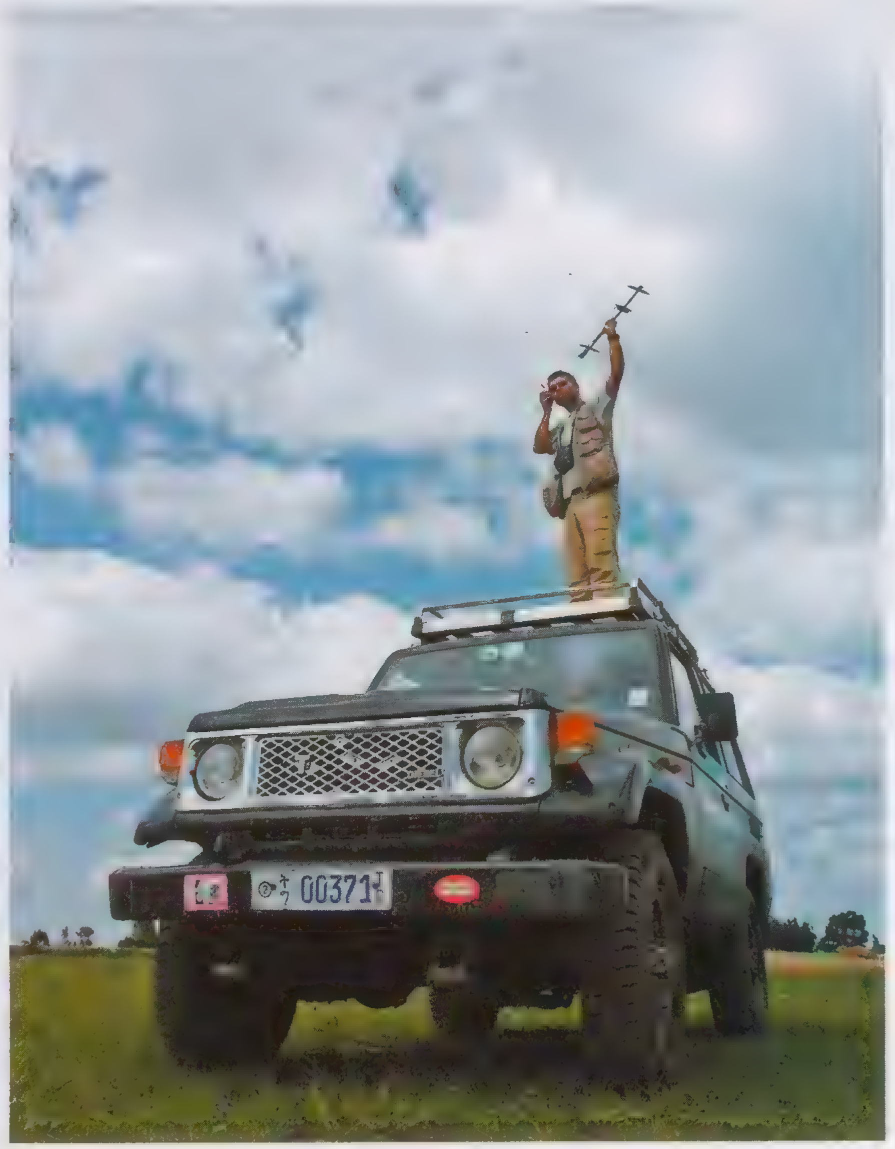
*Researchers discovered a tiny breeding population of rare Northern Bald Ibises (Walldraps) in Syria in 2002. These birds may be the last of this critically endangered species that still migrate. To find out where they go, three birds were trapped, fitted with satellite transmitters, and followed to Ethiopia. Above, one of the tagged ibises. At right, the author listens for a radio signal.*

# IBIS QUEST

TEXT AND PHOTOGRAPHS BY CAGAN H. SEKERCIOGLU

## *Tracking down rare Northern Bald Ibises in the hinterlands of Ethiopia*

The day I arrived in Ethiopia, researcher Yilma Dellelegn Abebe of the Ethiopia Wildlife and Natural History Society (EWNHS) was just leaving the capital city, Addis Ababa, to search for three Northern Bald Ibises in a remote, roadless area of the country. These critically endangered birds had been satellite-tagged earlier in Syria by a team of researchers from Britain's Royal Society for the Protection of Birds (RSPB), BirdLife Middle East, and Cambridge University. According to the satellite signals, they had crossed into Ethiopia the previous month and were frequenting an area only some 80 kilometers to the northeast of us.



RAF AERTS

Also known as the Walldrap, the Northern Bald Ibis (*Geronticus eremita*) was once common in the Mediterranean area, but the birds now stand in imminent danger of extinction, with fewer than 300 individuals existing in the wild. Until 2002, the only known populations were in Morocco and Turkey, and these birds were nonmigratory. Then researchers found

BHL

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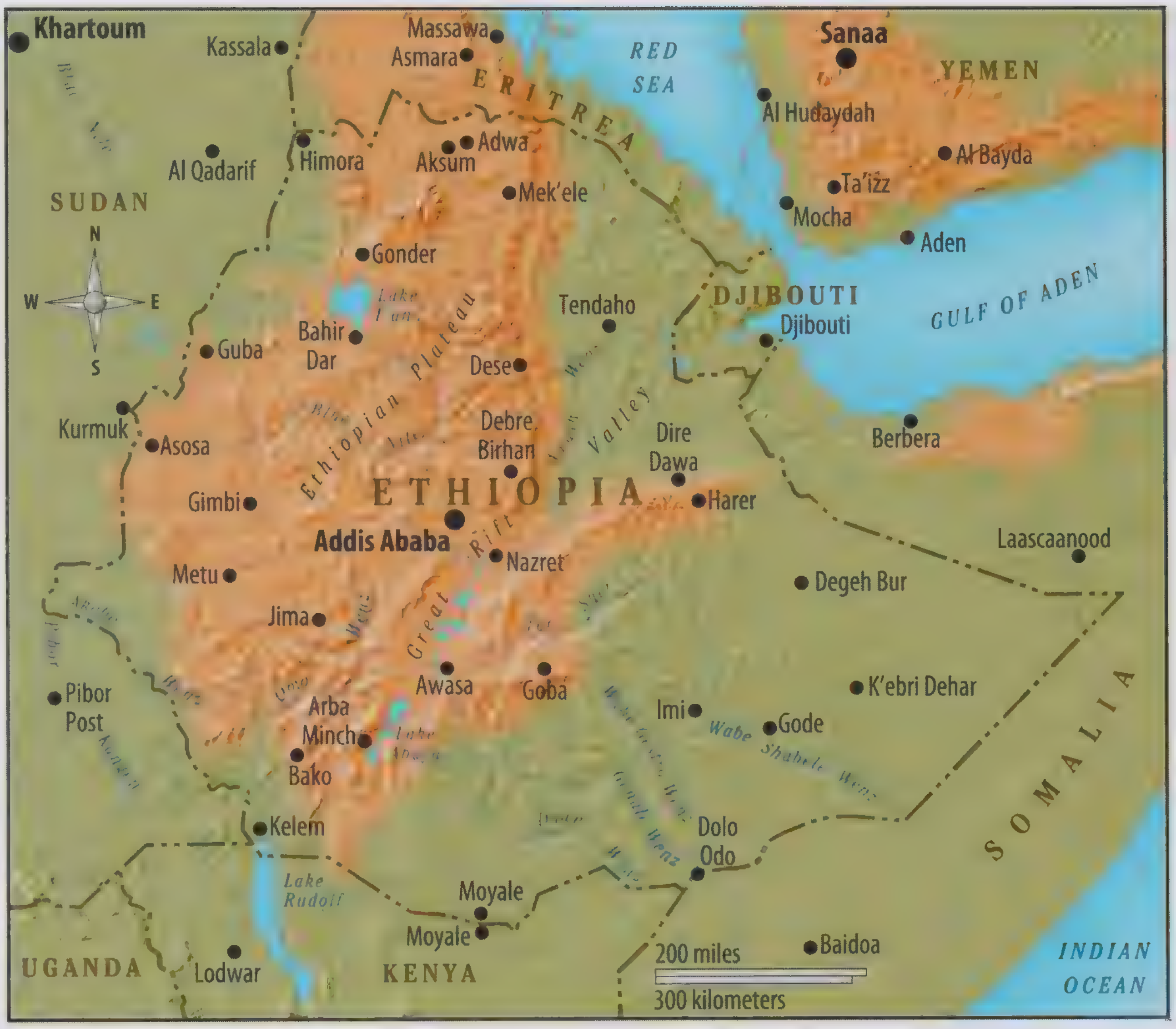
*Without proper conservation measures, the Northern Bald Ibis has a 50 percent probability of becoming extinct in a decade.*

*Ethiopian villagers (above) crowd around the researchers and point to field-guide illustrations of the kind of ibises they see in the area. Local people are often valuable sources of information on the wildlife they encounter.*

a tiny breeding population in the desert of Syria. They managed to trap two males and one female from the Syrian population and attach both satellite tags and radiotelemetry transmitters to the birds so their migratory route and wintering location could be traced. These were the birds that Yilma hoped to locate.

My friend Claire Spottiswoode, an ornithologist from South Africa, had delivered radio-tracking equipment to Yilma to help find these birds with the help of Raf Aerts, who was doing forestry research in Ethiopia. Knowing that I had extensive experience radio-tracking tropical forest birds for my doctoral research, Yilma invited me to join the bald ibis expedition.

I was excited about this expedition, particularly because the Northern Bald Ibis has been a major conservation symbol in my native Turkey for many years. Unfortunately these birds now live in a semi-captive state in Birecik, southeastern Turkey. Although they were widespread in Europe during the Middle Ages, the distribution of the bald ibis has been shrinking for centuries in parallel with the spread and intensification of agriculture. Without proper conservation measures, this species has a 50 percent probability of becoming extinct within a decade. Although there were still thousands of Northern Bald Ibises in Turkey in the 1950s, most of these mainly insectivorous birds were wiped out as a result of DDT spraying campaigns in the 1960s. Fewer than 100 individuals exist in the country now, and they no longer migrate. The last bird to migrate left Birecik in 1989 and never returned. The remaining ibises were brought into captivity soon after. Currently, they are let out of their cages during the breeding season, but are lured back into them with food as the migration period approaches, for fear that they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will leave and never come back. It is likely that these birds no longer know how to migrate, so finding a migrating population of seven birds in the Syrian Desert four years ago was a major ray of hope. The only other population consists of about 280 nonmigrating birds in Morocco, so the Syrian birds are probably the last migrating bald ibises. I was dying to see them, but they lived in a remote, undisclosed location in the middle of the Syrian Desert.

However, the RSPB/BirdLife/Cambridge University team succeeded in capturing three of them and was using the satellite tags they had placed to track the whereabouts of these mysterious birds. The ibises had headed down the Rift Valley to Yemen and, after a few weeks, crossed the Red Sea to settle in the Ethiopian highlands for the winter. The purpose of our expedition was to find these wintering grounds. The area had many bird species mostly or entirely limited to Ethiopia, and I was also looking forward to finding the likes of Blue-winged Goose, Wattled Ibis, Black-winged Lapwing, White-collared Pigeon, Somali Wheatear, Thick-billed Raven, White-billed Starling, Swainson's Sparrow, Brown-rumped Seedeater, Abyssinian Siskin, and Ankober Serin. Equally exciting was the chance to see Gelada baboons, the males of which have huge canine teeth and manes more impressive than those of lions.

Within a few hours of arriving in Ethiopia on October 2, I left Addis Ababa with my driver Sisay Sayfu, and joined Mengistu Wondafrash, head of EWNHS, Yilma, Raf, and the rest of the team in Debre Birhan (The Mountain of

*It took hours of driving cross-country through jagged rocks, muck, and mire for the researchers to get to the area where the satellite data indicated the birds should be. They drove in a convoy of three four-wheel-drive vehicles and got stuck several times (left).*

*Author Cagan Sekercioglu (in white T-shirt and binoculars) and the research crew celebrate the discovery of the bald ibises with breakfast. From left to right, Tadesse Wegdersse, Raf Aerts, Hadgu, a local villager (in wool cap), Yilma Dellelegn Abebe, Tewabe Ashenafi, and Mengistu Wondafrash.*

Light), a city 2,600 meters above sea level and about 130 kilometers northeast of the capital. Although we had GPS coordinates of the birds' location, obtained by a satellite the previous week, the area had no roads. Despite his years of off-road driving experience in Ethiopia, Raf had failed to reach them, so we decided to try another route.

The next morning, I got up at 6:00 A.M. to go birding with Yilma and was delighted to see all but three of the local specialty birds in the course of two hours. We set out from Debre Birhan at 9:00 A.M. and got onto a dirt road heading southeast toward Denneba, where Kenea Gadisaa, regional head of the Bureau of Agricultural and Natural Resources (BOANR), joined us, along with Tadesse Wegdersse and Tewabe Ashenafi. According to the map, we could drive only up to Arbi Gebeya (Friday Market), after which it was another 13.5 kilometers to the area where the ibises were most likely to be. After an hour, our convoy of three four-wheel-drive vehicles got off the dirt road onto a rough track which at times disappeared in fields of *tef*—the iron-rich and highly nutritious grain used to make the pancakelike *injera*, staple of the Ethiopian diet.

In Arbi Gebeya, we were glad to see that we could drive farther, albeit on a rough track with sharp basaltic rocks reminding me of the highly volcanic past of the highlands. A few times we had to stop, and with local people's help, filled the muddy holes with rocks until the vehicles could get through without sinking. After a few hours, we finally reached the end of the track, which ended on a small plateau overlooking a valley with a stream and small lakes—ideal ibis habitat. Surprisingly, we did not get any flats during the atrocious drive, but the Land Rover's suspension had been damaged and would need to be repaired. The hour was already past 4:00 P.M. It was going to get dark in two hours, and according to the coordinates we had, we were still 6.5 kilometers from the center of the 4 square kilometers where the birds were spending most of their time, according to the satellite data.

Most disconcertingly, we could not receive any signals with the radio-tracking equipment we had. During the past five years, I had radio-tracked more than 400 birds in Costa Rica. The fact that we could not receive a signal from any of the tags suggested that the problem was with the receiver. Although theoretically it should have worked, the only signal we received was Radio Addis, which came in loud and clear. This greatly amused the villagers surrounding us, who also thought my telescope was road-surveying equipment. A very brief signal that seemingly came from Sultan, one of the tagged birds, was most likely random interference. Of course, it was possible that the batteries had died prematurely and the radio tags on the birds were no longer functional.

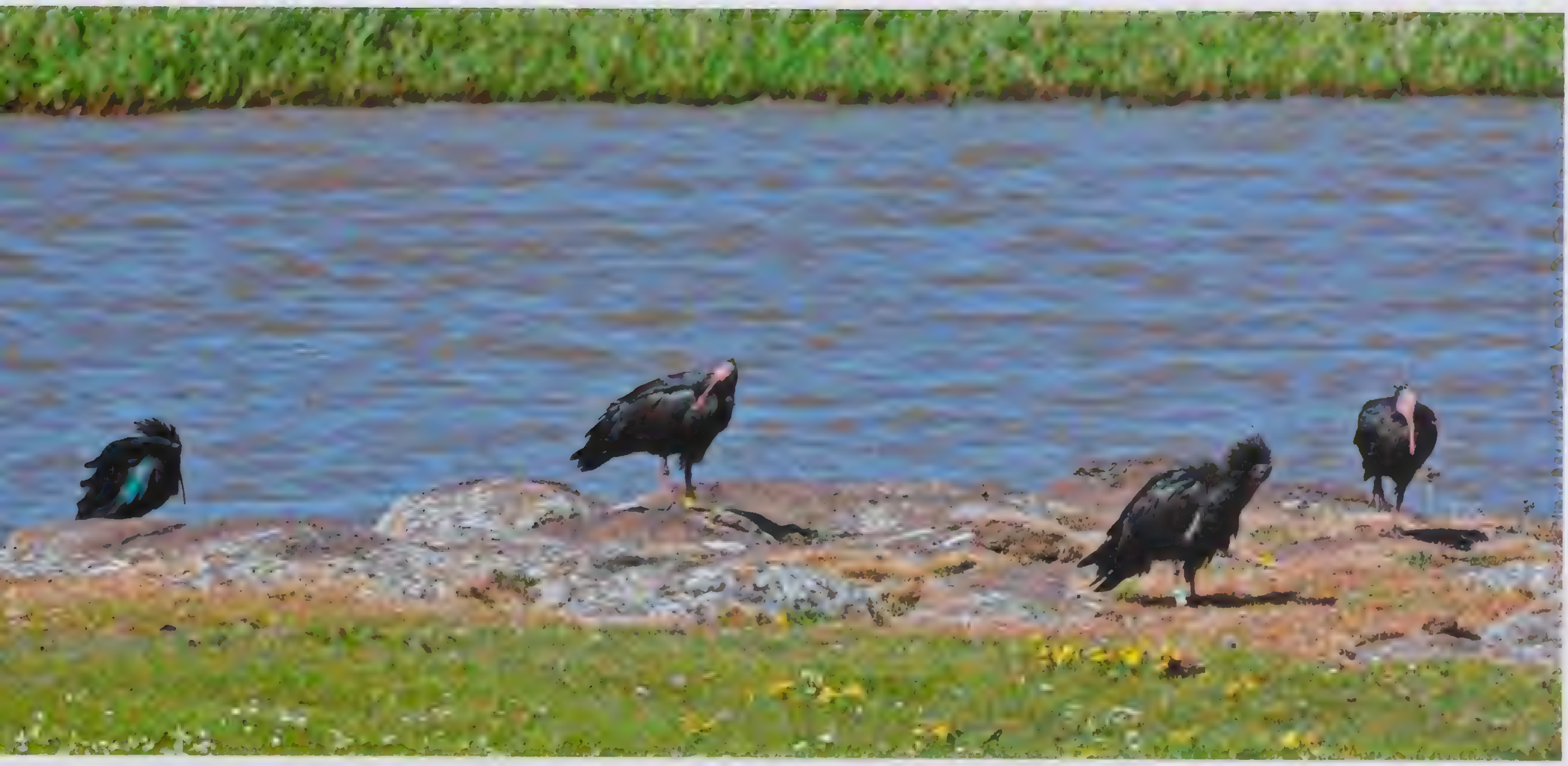
It was late, and the broken Land Rover had to go back to Debre Birhan for repairs. Raf, his assistant Hadgu, Sisay, and I decided to stay in the nearby village of Woke. Our dinner consisted of *biskits*—balls of dough fried in oil. Not having had lunch, we were overjoyed to get four biskits per person. The hospitality of the villagers did not end there: we were treated to a traditional coffee ceremony that night. Coffee is thought to have originated in the Ethiopian province of Kaffa, and the drink has a central place in the Ethiopian culture. A woman first slowly roasted the coffee beans on a metal pan over a wood fire. After that, another woman pounded them for 20 minutes with a mortar and pestle while the water came to a boil then brewed the strong, dark beverage over the fire. I was surprised to be served coffee in brand new china, in a village that mostly consisted of mud huts and animal corrals. The coffee ceremony is not for the caffeine-sensitive or the time-constrained. It takes nearly two hours to go through the three rounds of coffee, and it is rude to leave before the third cup has been drunk. Fortunately, I was too exhausted from the long day for the caffeine to have much impact.

Not having brought my sleeping bag, I decided to sleep in the cramped backseat of my vehicle. I was tortured by chiggers and mosquitoes and was definitely not dressed for the cold at an altitude of nearly 3,000 meters. After a long, tormented night in which exhaustion, hypothermia, and Lariam (the antimalarial drug I was taking) competed to induce the most bizarre nightmares, I was more than ready to get moving when my watch went off at 5:30 A.M. on the morning of October 4.

*A villager roasts coffee beans during the elaborate coffee ceremony. Coffee is thought to have originated in the Ethiopian province of Kaffa and has a central place in the nation's culture.*

*I was surprised to be served coffee in brand new china, in a village that mostly consisted of mud huts and animal corrals. The coffee ceremony is not for the caffeine-sensitive or the time-constrained.*

We soon set out toward the southwest. About four kilometers from Woke, we reached a lake with Greater Flamingos, Sacred Ibises, Hadada Ibises, endemic Wattled Ibises—but not the Northern Bald Ibises we were seeking. Nor did we receive any radio signals from the birds. At the lake, Mengistu, Yilma, Tadesse, and the others caught up with us, after getting the Land Rover fixed and driving back to Woke. We set out again toward where the birds were satellite-located about a week earlier. Twenty minutes later, at about 9:15, I saw some tantalizing, big, dark birds near a pond, and upon checking them with binoculars was amazed to see that they were the bald ibises. Unable to believe our luck, finding them four kilometers away from where they spent most of their time, I said: "There are some interesting ibises over there." Putting my scope on them, I could indeed see they were the same species I had watched flying over Birecik cliffs the previous year. I could even see one bird's leg bands and the antenna sticking out of its back feathers. I jumped up and down with triumph and must have looked like a deranged chimpanzee to the shepherd watching us from a distance.



*Cagan Sekercioglu and the other researchers finally found the three satellite-tagged ibises along with one untagged bird along the shore of a remote pond (above). At right, below, sits an "Ethiopian" African Stonechat—one of the many interesting local birds the author saw during the search for the bald ibises.*

We were all ecstatic to have found them in the middle of nowhere, since the radio telemetry equipment we had was definitely not receiving any signals from the birds even when we were within 50 meters of them. According to the satellite data, the birds frequented an area of about 100 square kilometers, and they could have gone even farther since being last located the previous week.

We had been very lucky. This was a lush, cultivated valley with small lakes and a stream, and from the droppings and feathers, it was obvious that the birds were using a rocky outcrop on the lakeshore as their roosting site. They were hanging around near some huts and were not afraid of people. We could see all three of their leg bands (HL, HH, KL) and all of the birds still had their transmitters. With them was a fourth ibis that, naturally, had no bands or radio, and could be placed on the life list of even the most strict bird lister. Sadly, our hopes that the three tagged birds would lead us to a good-sized flock were not realized, and we wondered if we were looking at the entire migrating bald ibis population in the world. Given that these easily visible and approachable birds winter only 80 kilometers from Addis Ababa but were thought to be extinct in the country, we wondered what other biological marvels await discovery in the vast, mostly roadless hinterlands of Ethiopia.

Although Ethiopia is one of the world's poorest countries, its biological, cultural, historical, and culinary wealth belies its stereotypical image as a land of famine and death, and the Ethiopian home of the bald ibis is lush and fertile. However, 95 percent of the country is deforested, the fertile soils are eroding rapidly, and the Ethiopian people and wildlife need the urgent support of wealthier nations. Only then can we ensure the future of the unique and fascinating biological and cultural diversity of this amazing country. I am still hopeful that the wealthier nations will do their share and one day the Turkish bald ibises will join the Syrian ones on their migration to Ethiopia. ■

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*Cagan H. Sekercioglu is a senior research scientist at Stanford University. His Ethiopia Bird Education Project is supported by the Christensen Fund.*

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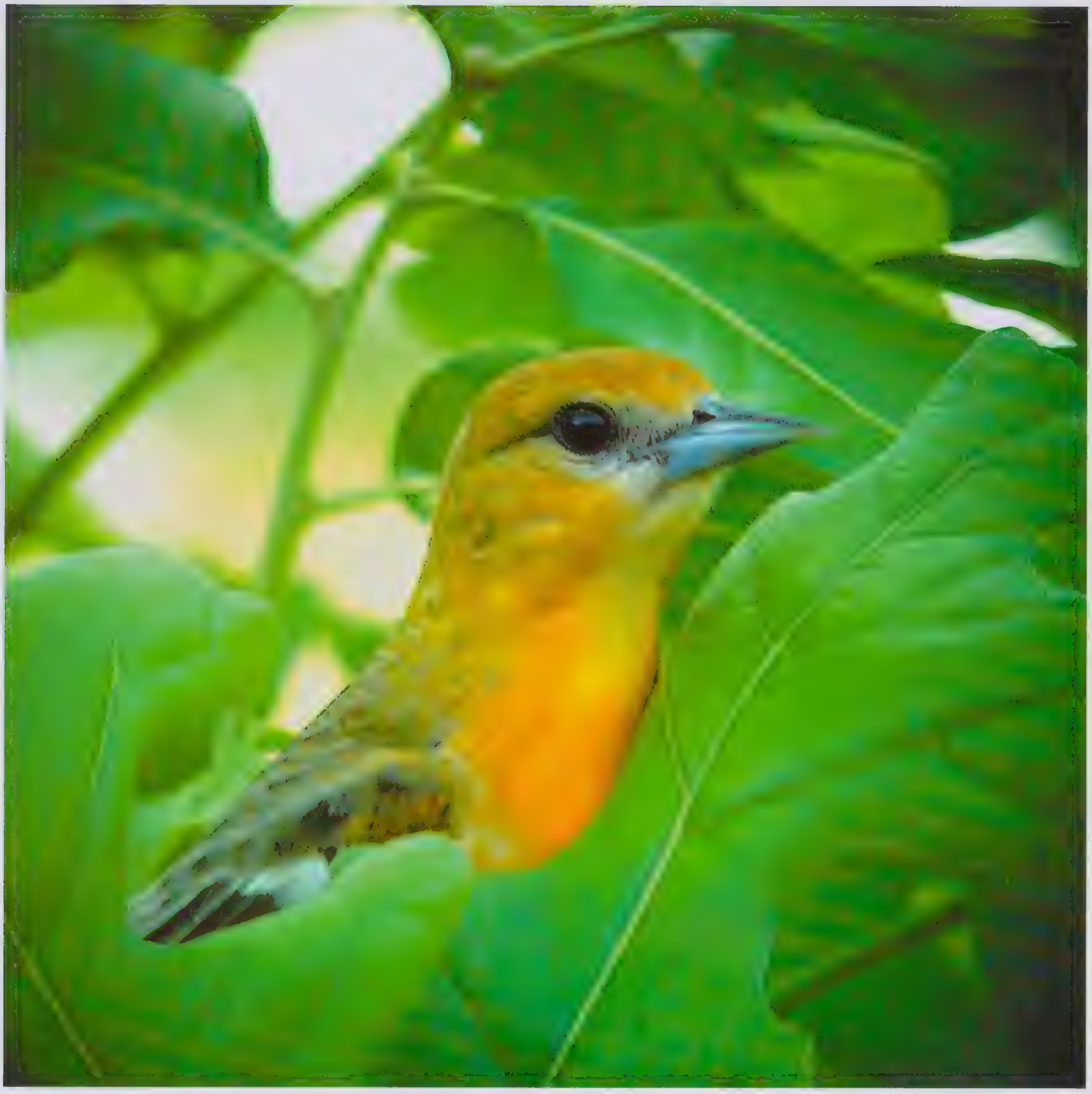
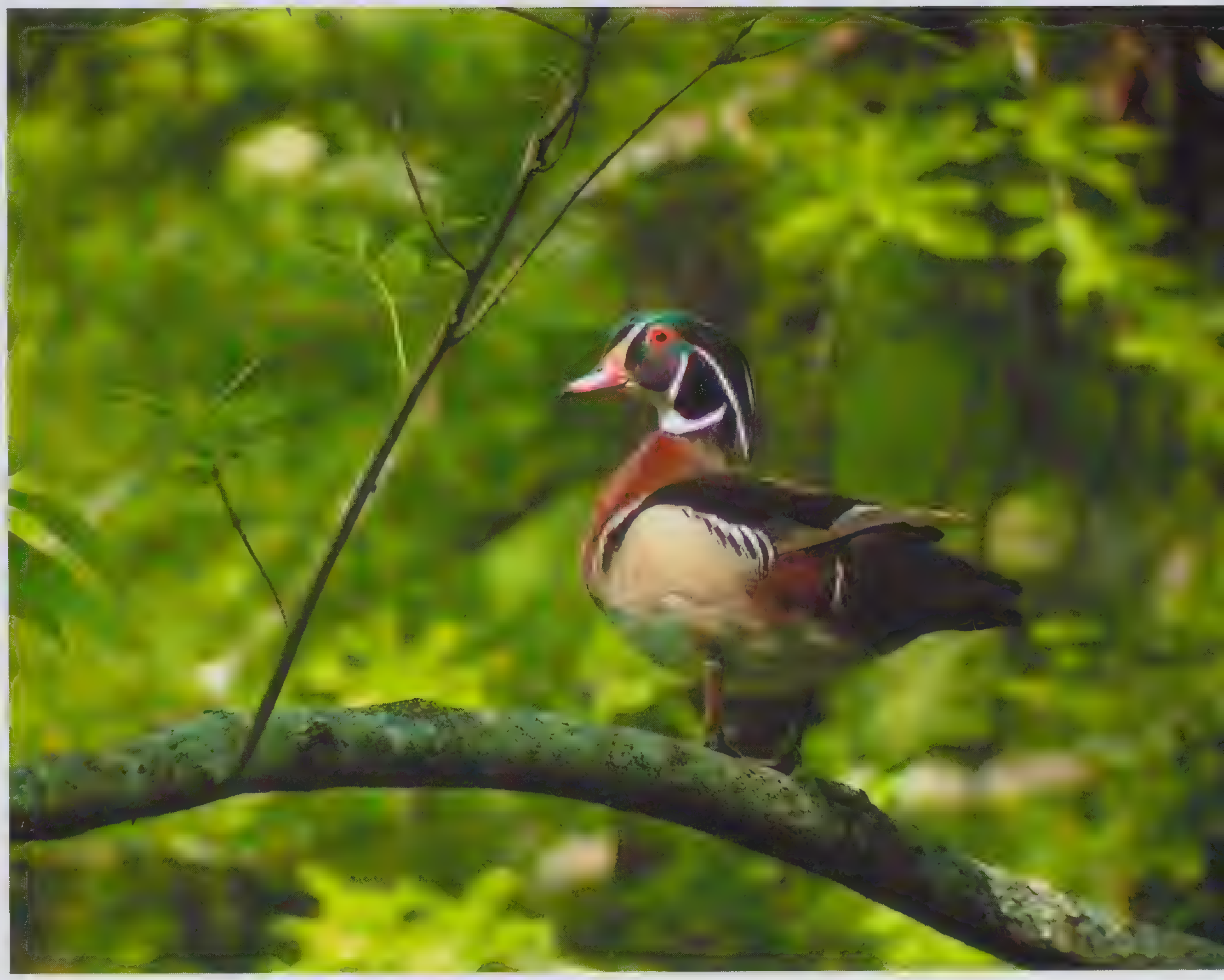


# AND THE WINNER IS . . .

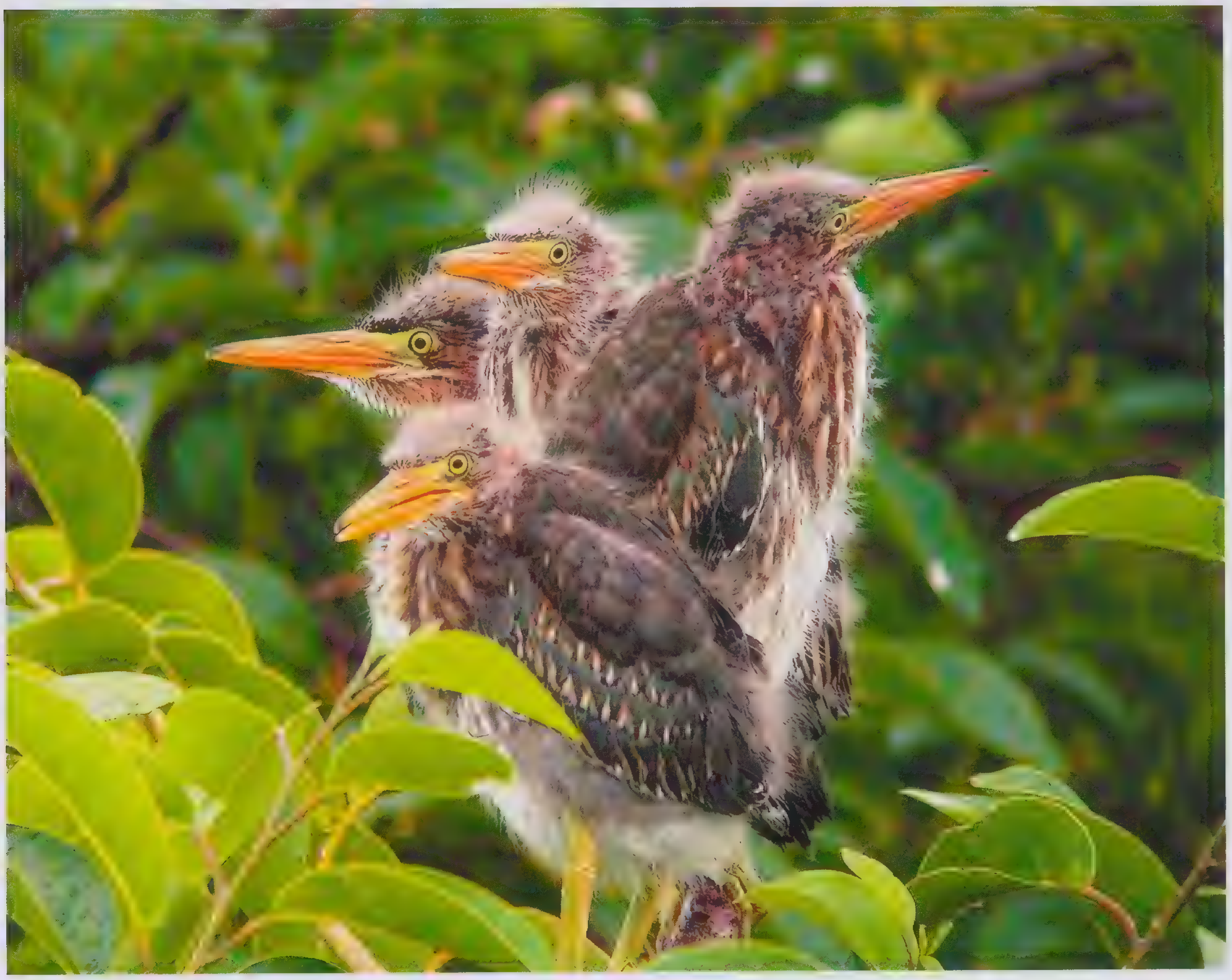
## *Announcing the top three pictures in the Lab's digiscope bird photography contest*

This past spring we published an article by ornithologist (and pioneer digiscoper) Kevin J. McGowan titled "Digiscoping Revisited"—a followup piece to one he had written six years earlier when few had even heard of this innovative nature photography technique. We decided to sponsor a contest, inviting *Living Bird* readers to enter their favorite image they'd taken with a digital camera and spotting scope. The results were delightful. As promised, we are presenting the three winning images here. Gary Mueller of Rolla, Missouri, took top honors with his candid portrait of a female Baltimore Oriole. For his winning effort, Mueller will receive a Lab of Ornithology gift pack valued at more than $300. Dennis Demcheck scored second place for his beautiful drake Wood Duck and will receive a limited-edition print of a Ruffed Grouse painting by Louis Agassiz Fuertes. Jerry Eisner came in third with his engaging group shot of young Green Herons. He will receive a free one-year Lab membership. Congratulations to all three and the rest of the entrants. It was difficult to pick the winners.

*Gary Mueller captured this stunning portrait of a female Baltimore Oriole (left) in his own backyard in Rolla, Missouri, on a beautiful spring day this past May. As the contest deadline approached, he knew he was running out of time. "Then on May 29th, a female Baltimore Oriole landed in an oak tree in my feeding area and just sat there," says Mueller. "I opened the back windows in my house, pointed the scope and camera toward the oriole, and fervently hoped she would not fly away." Luck was clearly with him. Despite a wind vigorously blowing the branches and leaves, causing the bird to move in and out of focus, Mueller got the picture he was after, using a Swarovski AT80-HD spotting scope and an Olympus C-5050 Zoom camera. He says these were the only good pictures he got before the contest ended.*



*Dennis Demcheck visited the 65-acre cypress-tupelo swamp at Bluebonnet Swamp Nature Center in Baton Rouge, Louisiana, last May specifically to photograph Wood Ducks. "I have seen many shots of Wood Ducks swimming," says Demcheck, "but I was trying for a setting that displayed both their beauty and their habits." He clearly succeeded (at right). Mueller used a Swarovski AT80-HD scope and a Nikon Coolpix 4500 camera.*



*Jerry Eisner is an old hand at digiscoping. He photographed the Green Herons (left) at the Wakodahatchee Wetlands in Delray Beach, Florida, in May 2002. "These baby Green Herons were running back and forth on this bush," says Eisner. "Occasionally they would regroup." He finally had an opportunity to photograph the whole brood. His equipment of choice: a Tele Vue-76 scope with a 32mm Plossl eyepiece and a Nikon Coolpix 995 camera.*

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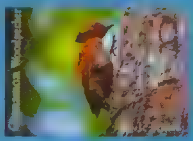

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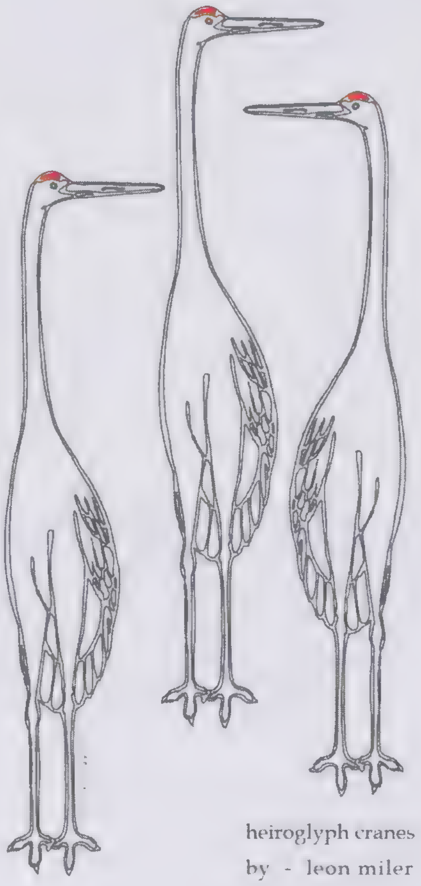
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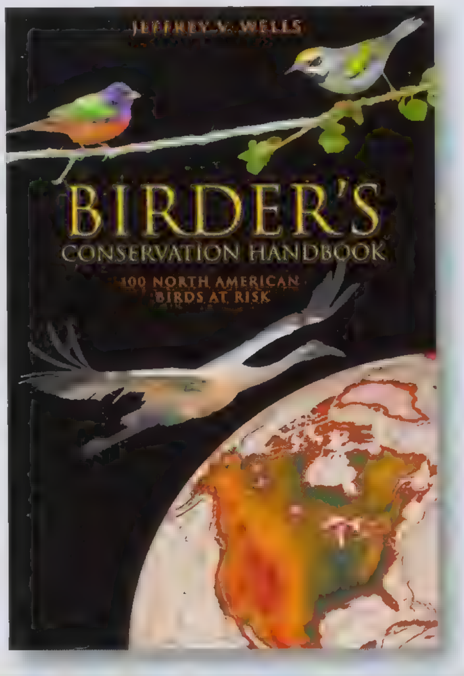
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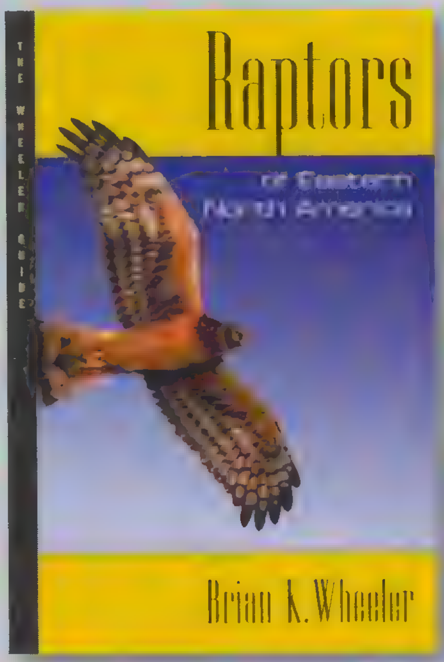
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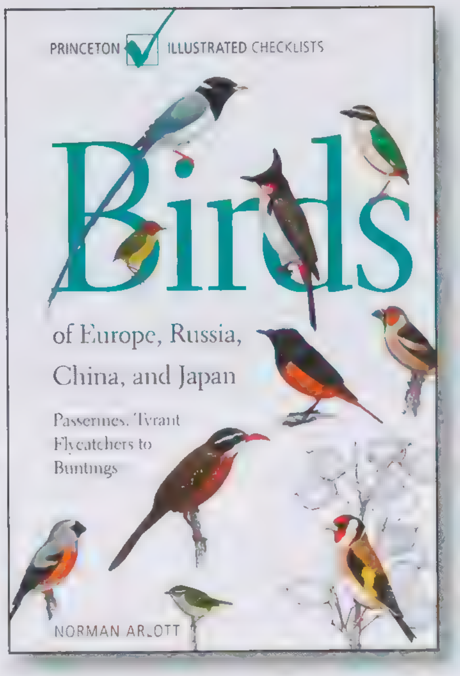
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# SELECTED MEMORIES

*by Mel White*

## *What makes a bird sighting an all-time favorite?*

At the occasional lights-out moment when I need something soothing to nudge me toward sleep, I like to let my thoughts drift over past birding trips. Not that these were all wholly pleasant—there's the inevitable rainy day, encounter with guerilla troops, or café with a lousy wine selection—but by now I've accumulated enough memories that I can choose a relatively rose-bordered path along which to meander. Or, more ornithologically appropriate, one lined with ripe mulberries, marshy ponds, fruiting cecropias, and bright-red, hummingbird-friendly flowers.

Which volcano *was* that (I muse) where I saw the Fiery-throated Hummingbird—Poas or Barva? Yes, it was Poas . . . in fog so thick the path disappeared into a gray nothingness. Was it the same day of the Torrent Tyrannulet? Or the day I finally saw a Striped Cuckoo? No, that was a different day—a long time coming, too, but not as long as it took to find the Great Spotted Cuckoo along that dirt road through the endless empty grassland of Extremadura. That was a nice surprise. No hummingbirds there—just the bee-eaters and rollers for flashes of tropical colors, and then the pair of Little Owls, and then the classical station on the clock-radio is playing Granados's "La maja y el Ruiseñor," and it's time to get up and wonder very seriously about synchronicity.

It's a gently rocking train to Dreamsville, population: me—as long as I don't accidentally think about the time I was answering a call of nature behind a bush when the Giant Hummingbird flew past the rest of the group, or remember all those "guaranteed" birds that didn't show up, from Black-backed Woodpecker to Long-tailed Manakin to Nelson's Sharp-tailed Sparrow. That'll shunt the Sleepytime Express over to a side track, for sure.

Eventually, such reminiscing led to consideration of my all-time favorite bird sighting. This is an excellent way to lull yourself to sleep, since there are no unpleasant memories, only a kind of beauty contest in which all the participants have already won their regional events: Miss Queensland, Miss Rio Grande Valley, Miss Ecuadorean Andes, Miss Southeastern Arizona, etc. It was a tough competition, but I eventually settled on a winner, which, as you've probably guessed, I'll now tell you about.

It was at the famous Chan Chich Lodge in Belize, where a pair of Ornate Hawk-Eagles was nesting along a creek. (A friend, just back from Chan Chich as I write this, reports that a pair still nests there.) I walked to the spot and, sure enough, saw the two birds switch places on the nest. The whole thing was disappointing, though. I was standing far away from the nest, hoping not to disturb the birds, and I saw little more than two big shapes flying for a few seconds. The next morning, though, I got up at dawn and walked into the Maya ruins on the hill above the cabins. As I stood there in the morning light, all alone, an Ornate Hawk-Eagle flew into a nearby tree, perched at my eye level, and sat for several minutes. I could go on for some time about this moment, but you can probably imagine the rest.

Now, Ornate Hawk-Eagle is a pretty fabulous bird—big, colorful, strikingly fierce-looking, generally uncommon to rare—but the world is full of fabulous birds. What made this my favorite sighting was in large part the circumstances: the beautiful morning, the exotic setting, the close view in perfect light, the unexpected encounter after the disappointing life tick of the previous day, the solitude and silence. And I started thinking: How do other people decide on their all-time favorite birding moments?

So I emailed about a dozen birding friends and asked them: What's your all-time favorite sighting? And, further, how much of the favoriteness was the bird and how much the circumstances?

I quickly discovered that apparently quite a few birders don't have an all-time favorite sighting. Several folks responded and thanked me for prompting them to think about it, because it was such a pleasurable task. (I forgot to ask whether any of them considered the question while they were falling asleep.) At any rate, I got some good stories. There was drama, and more than a little comedy. Take, for example, my friend with the improbably birdy name Leslie Peacock. On hearing that Swallow-tailed Kites were nesting in Arkansas for the first time in a century (see *Living Bird*, Summer 2003), she drove into the Delta backwoods, stopping along a remote dirt road to scan a field where dozens of Mississippi Kites were hawking for insects. When she got back into her car, it wouldn't start. Along came an old pickup truck.

"I'd been told about the local river rats, and I was wondering if the bumper stickers on my car would make them

ILLUSTRATION BY JOHN SCHMITT

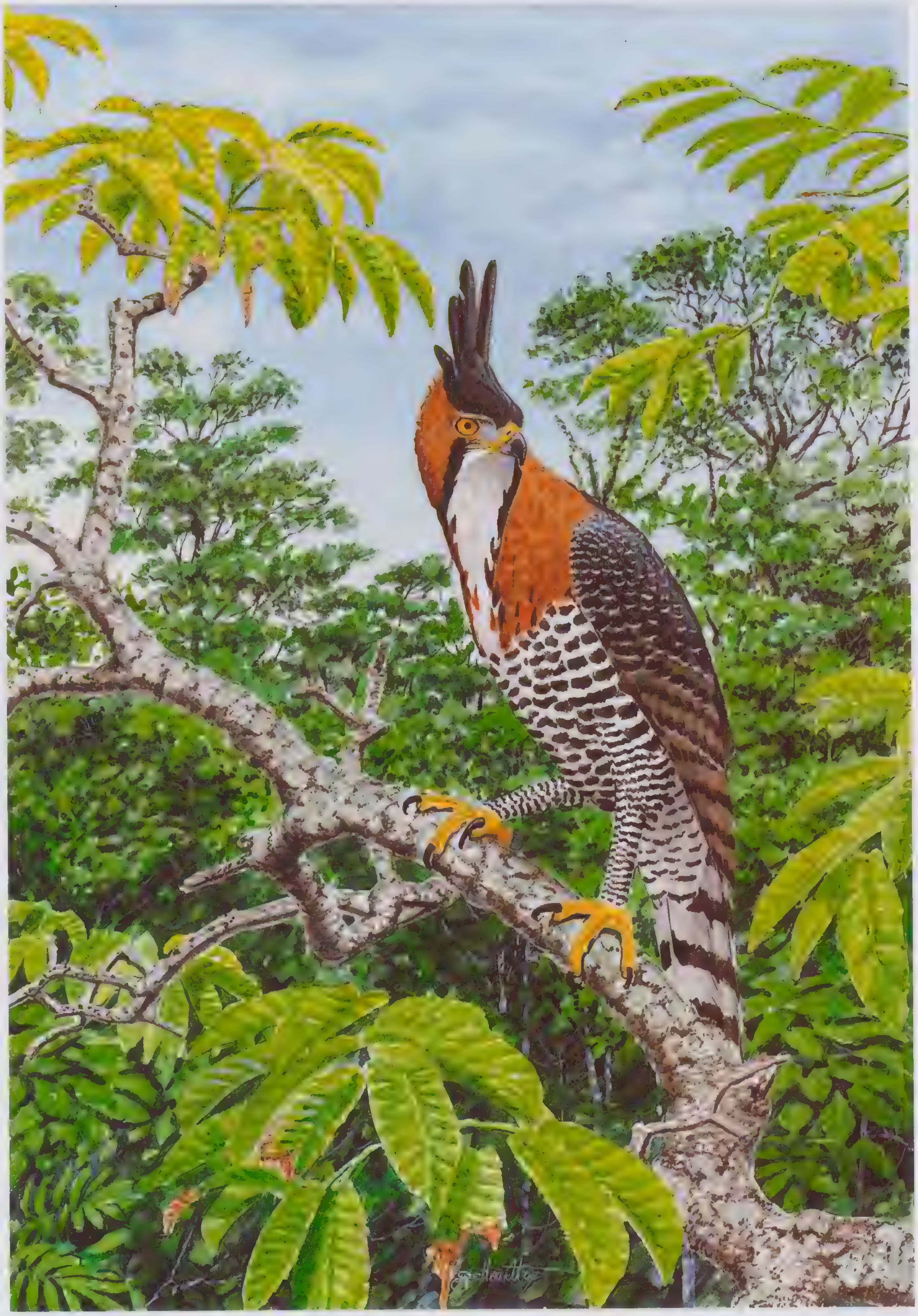
wonder if I was some Yankee pinko. But I stopped them anyway and asked about the nearest gas station. The old guy got out of his truck, sat down in my car, and asked, 'You figure if you put it in park it would start?'"

Minutes later Leslie was beside a White River slough, where the moment she got out of her car two swallow-tails swooped down just above her and perched in a nearby tree. "I was so excited I locked my keys in the car when I got back to camp, and it cost a fortune to get someone to come open the door for me."

Who could argue that this deserves to be her all-time most memorable sighting? Not me. Not anybody who's ever seen a Swallow-tailed Kite.

Virginian Nancy King remembers visiting Anzalduas County Park in southern Texas with her regular travel partners, who end each day of a trip by opening a bottle of wine, updating their checklist, and composing another chapter in their multi-author birding mystery novel. "We have had the pleasure of killing off a number of very annoying fellow birders." (Did I have the nerve to ask? No.)

"We were walking along the Rio Grande when we spotted two Crested Caracaras on the ground sharing a meal of some kind of vermin. While we were watching the feast, a lone Turkey Vulture landed nearby and began sidling up and extending his wings to maximize his size. They let him get close and then chased him away. He tried several more times but the caracaras never seemed to take his threat seriously, and he ended up waiting patiently for them to leave. This was theater! Avian melodrama! And it's the shared memory (and laughter) that makes it very special."


*As I stood among the Maya ruins in the morning light, all alone, an Ornate Hawk-Eagle flew into a nearby tree, perched at my eye level, and sat for several minutes.*

Successful thievery keeps a 30-year-old memory tops in Norman Lavers's ranking. Driving through Washington's famed Samish Flats, he and his wife, Cheryl, stopped to look at a Peale's-race Peregrine Falcon, which promptly flew to the ground and stole a small mammal from a dining Northern Harrier. I yield the floor to Norman:

"Although we had not previously noticed another bird around, almost instantly harriers began coming from every direction until there was a hornet's nest of nine hawks flying round the peregrine and buzzing him. Every time one flew directly at his head, he would turn and face it and raise his wings threateningly. He was fairly contemptuous of them, but they were making him uncomfortable, so eventually he took off. Suddenly there was a confused flurry, the harriers scattered in every direction, and the peregrine dropped the animal. We looked at the ground where the animal had fallen, and, piracy upon piracy, there was a

Rough-legged Hawk now in charge of it.

"While the peregrine evidently had not wanted to tangle with the roughleg, he was in a bad mood. His flight carried him over a Red-tailed Hawk sitting on a fence post. He dived down and began chasing the redtail, which flew off rapidly ahead of him, making for the cover of some nearby woods. The redtail obviously was not completely terrified, for as he was flying he spotted a vole in the field below, dropped down, and scooped it up off the ground. At that point the peregrine came up fast and reminded him he was being pursued. The redtail dropped the vole, and the peregrine grabbed it and settled down for what he no doubt thought was a well-earned meal."

Continuing with the theme of cuisine, my New Mexico buddy Rob Doster remembers a colorful entrée in Costa Rica. "Two birds that were high on my must-see list were White Hawk and Fiery-billed Aracari. I'd seen the aracari the previous day, but this time was even more dramatic: a recently killed Fiery-billed Aracari was dangling from the talons of a White Hawk. The White Hawk was impressive enough by itself, but to have that splash of color that was the aracari proved to be one of those special events that you encounter only in the tropics."

I happened to be standing with Rob to share this amazing sight, and it makes my Top Ten list, too. It would rank higher except that everybody in the group had seen Fiery-billed Aracari but me, and I couldn't count a dead one. Really excellent view, though.

Several people recalled sightings of birds that were far from exotic—indeed, so common that the circumstances were the sole reason for their memorability. Hope Norman was in lower Manhattan, a long way from her home on a Louisiana bayou, when she received news that a close friend had a terminal illness. "I walked over to the World Trade Center plaza and sat down on a bench, surrounded by thousands of people going hither and thither totally unconcerned with me, of course. In a way that was good: I didn't feel like facing anyone, and my anonymity was welcome. I sat there quietly, head down and staring at the concrete, trying to deal with the unwelcome news.

"Suddenly I noticed, of all things, a small bird flying in short spurts on the pavement nearby. I got up and followed it. No one else seemed to be noticing as it skillfully made its way through the throng. I realized that, of all things, it was a Common Yellowthroat, something I see all the time on the marsh in Louisiana. I felt a special kinship with this small bird, as if we were both out of our natural element but somehow making our way through. I know this sounds sappy, but every single time I've seen the World Trade Center pictured since, even in its awful doom, I've remembered that day when I met the yellowthroat at what was to become Ground Zero."

*"I know this sounds sappy, but every single time I've seen the World Trade Center pictured since, even in its awful doom, I've remembered that day when I met the yellowthroat at what was to become Ground Zero."*

I heard from others whose favorite sightings involved Ring-billed Gull, Ruby-throated Hummingbird, Rose-breasted Grosbeak, and Blue Grosbeak, among other everyday species. Still, the allure of the truly exotic is strong—as in Cheryl Lavers's most memorable sighting.

"When we lived in Thailand, we took every opportunity to escape Bangkok and get out to Khao Yai National Park. On one visit I let Norman and our son, Gawain, go down a path while I chose to sit on a fallen tree under the dense canopy of tall shrubs with sinuous trunks. There was a green light under there, almost no undergrowth and no air; it felt oppressive and surreal. I soon thought I'd made a mistake to stay behind as there was absolutely no bird noise or movement at all.

"Then I heard a loud rustling from out of sight over the slope to my right. It got even louder and closer and I thought of the large cat tracks we had seen in the mud back where we parked the car—tracks we thought might belong to a leopard. I kept very still thinking how very neat it would be to see a leopard but wondering whether it would be as pleased to see me, when the creature just exploded over the edge of the slope and into sight, speeding up my heart rate quite a bit. It was a magnificent male Silver Pheasant sporting a glorious long tail and shining brightly in that dark place. The books give a length up to 50 inches, of which 30 are the tail, and I'm sure this guy was one of the champions. The elegant bird then high-stepped and scratched its way past me with its bright red feet, clucking like a hen, looking for edibles in the leaf litter. When it saw me it began to walk with exaggeratedly slow steps rather like a chameleon. I turned slowly and carefully, trying not to frighten it, and watched it move out of sight. I think that was when I remembered to breathe again."

Yes, exactly: remembered to breathe again. That's how I felt when my Ornate Hawk-Eagle tired of preening itself and flew away. There might be no better description—or is it diagnostic symptom?—of the kind of encounter that stops you in your tracks, indeed seems to stop time itself, whether it's a beginner's first Scarlet Tanager in the back yard or an antpitta in the Peruvian forest.

I knew I wouldn't get a definitive answer to my bird-or-situation question. One of my own best birding highlights involves the rare and regal Lammergeier on Kilimanjaro, and another the ubiquitous Tree Swallow in a cow pasture. Thai jungle or Manhattan street? That's not what really matters.

The late Howard Moss, longtime poetry editor of *The New Yorker,* wrote a book of essays whose title summed up the only thing that truly counts in good writing. It was called *Whatever Is Moving,* and it's no overstatement to say the same applies to transcendent moments in birding—whether they move you to laughter, tears, or awe. ■

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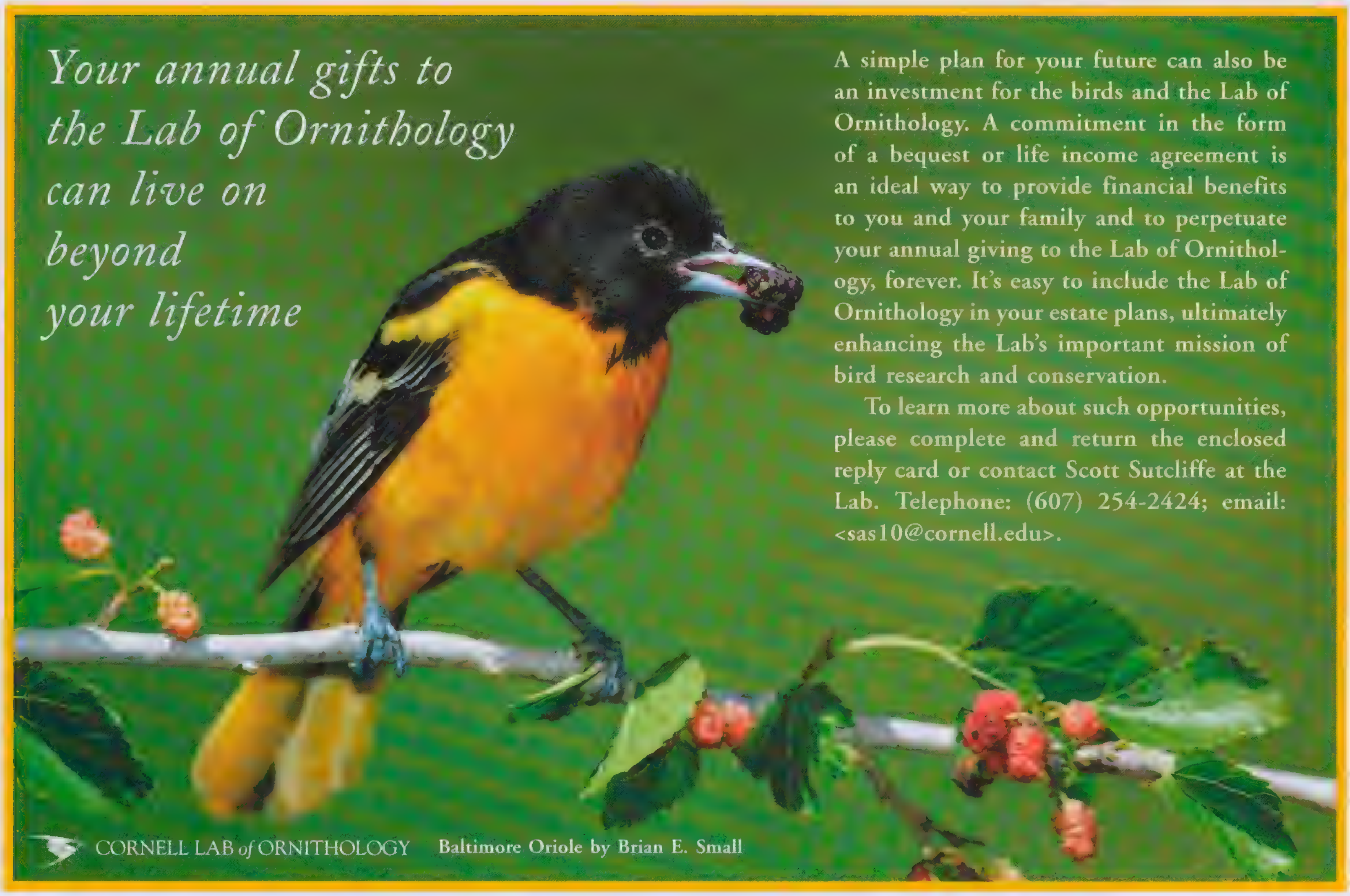

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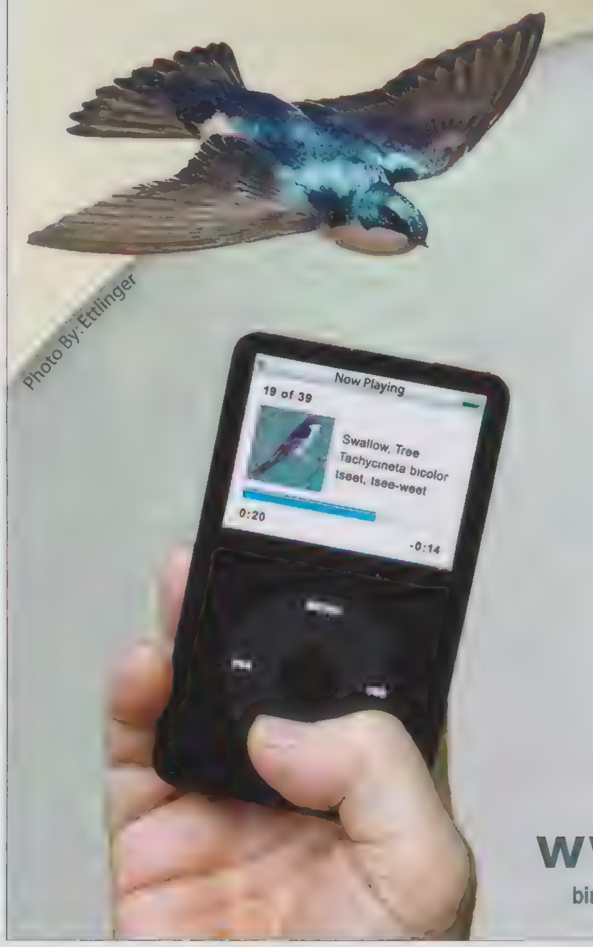

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# CAST OF CHARACTERS

*by Pete Dunne*

You don't bird as long as I have and not run into the odd oddball. Mind you, I'm not saying that our avocation is a catchall for those whose orbit is, at best, tangential to the norm. In fact, I'd be willing to bet that on a per capita basis there are fewer mass murderers, pyromaniacs, and people suffering from multiple personality disorders among birders than you'd find among the ranks of NASCAR fans, computer hackers, and descendants of the Russian royal family.

But I have met one or two memorable sorts that I'd like to share with you. What judgement you care to pass is strictly your own.

Among my favorites were R and A. They were hawk watchers, married by all the signs. Their accents and penchant for hoofing it everywhere suggested that they lived in or near New York City. For many years they were Cape May regulars and when not looking at hawks were generally deep in caucus—presumably comparing notes. After a few seasons I got very curious about these sessions. Curious enough to ask one day (and in a purely conversational fashion) what they were seeing?

"Lots of hawks," they assured me.

"Great," I said. "What species?"

It was a perfectly reasonable question, I thought—one that I have asked fellow hawk watchers time and again.

Instead of the anticipated raptorial rundown, my question triggered a heated (but closeted) discussion followed by the admission:

"We don't identify them. We just count them."

Birding has something for everyone. I've never said otherwise.

Another favorite was Yoda. That wasn't her name but what my fellow workshop leaders named her. Yoda was a slight, spry, avid, and apparently very nearsighted birder whose single-minded devotion to bird study manifested itself in her inability to hold her ground.

Anytime a bird was seen—and in apparent response to the cautioning directive for everyone to stand still so the bird won't flush—Yoda would raise binoculars to her eyes and shuffle forward in the general direction of the bird.

As I recall, she never actually saw a bird. But what was most remarkable was that she didn't fall flat on her face. If you don't think walking with binoculars raised is challenging, I invite you to try it. Preferred habitat is a completely padded room.

Then there was Patty, perhaps the most enthusiastic birder I have ever known. The source of her enthusiasm was the frequency with which she encountered life birds. In fact, it happened nearly every time she went birding.

The secret to Patty's success wasn't skill. It wasn't luck. It wasn't a Phoebe-Snetsinger-sized travel budget. It was her memory. Patty was blessed with a mind that deflected instead of banked avian encounters, with the result that Patty could get a life bird out of the same bird over and over again.

Encounters might go something like this:

"Look Patty, a Magnolia Warbler."

"Oh WOW! Oh that's so gorgeous. Have I seen that?"

The answer was always "no."

"Oh WOW. It is SO gorgeous."

I know what you're thinking, and you're probably right. I should have been more forthcoming and told her the truth. But then she would have been bummed (because she didn't remember it), and she wouldn't have gotten so jazzed about seeing a life bird—and I wouldn't have gotten to share in her enthusiasm.

In fact, I'm kind of jealous. Wouldn't you love to have a mind that would let you wipe the slate clean and start your life list all over again every time you went birding? I sure would.

And finally there was Dave, the birding curmudgeon, who never found himself in a situation where there wasn't something to fault. Dave once showed up for a pelagic trip I was running with a glum expression and the pessimistic pronouncement:

"I suppose you're going to tell me after my three-hour drive that the trip is canceled."

"No," I said. "The captain say's we're going out, wind or no wind."

"Oh, I get it," said Dave. "It's going to be your basic boot-your-cookies trip. We all go out and throw up for eight hours."

"Actually, the game plan is to go out and test the waters," I said. "If it's too rough, we'll come back in."

"Oh," said Dave. "So it's your basic rip-off! We go out long enough to take our money and then head back in."

Yep. No matter what, Dave was prepared to be unhappy about it. Must have ruined his day to see that life Dovekie and been caught wearing a smile. ■

ILLUSTRATION BY JEFF SIPPLE

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# LIVING BIRD

*Winter 2008 Volume 27 / Number 1*

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***Cover:*** A feathered symbol of the north woods, the Great Gray Owl ranges from Alaska southward along the Rockies and east across Canada, as well as in mountainous areas in Oregon and California. It is the largest North American owl. Photograph by Brian Small.

***Back cover:*** Nature photographer Marie Read took this intimate portrait of a Common Redpoll one recent winter morning, not far from the Lab of Ornithology.

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Some of the most vital bird habitat on Alaska's North Slope is threatened—and we're not talking about the Arctic Refuge

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LIVING BIRD
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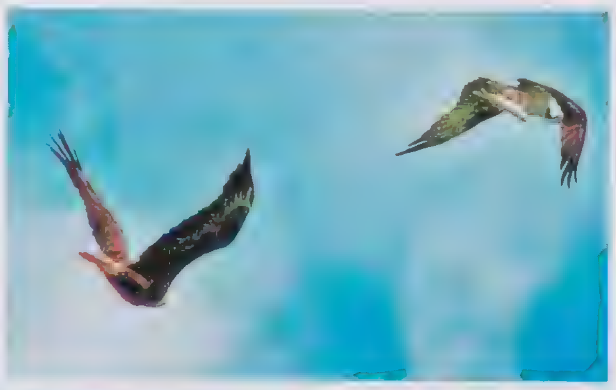
Cornell University

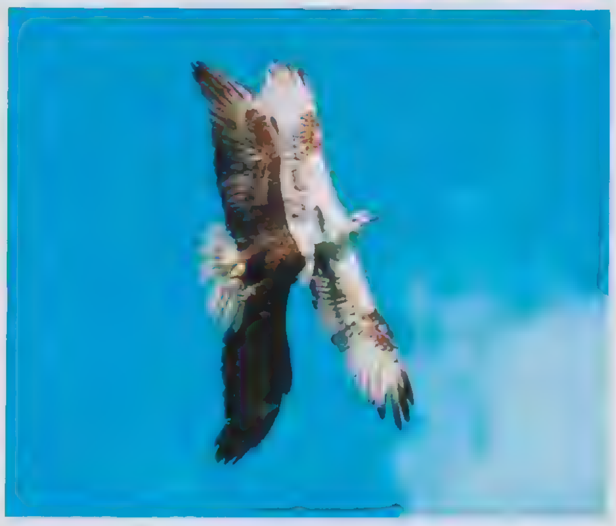
## Eagles and Ospreys

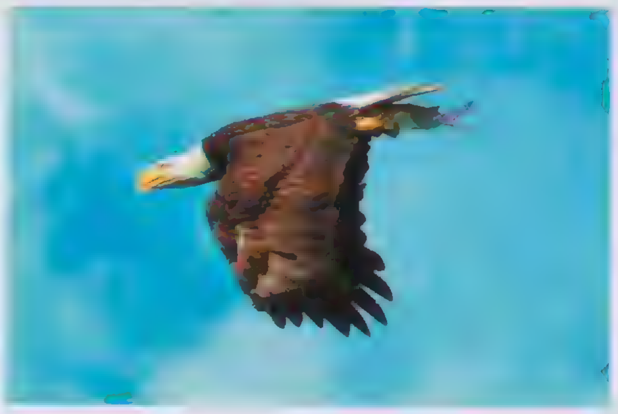
I read Jack Connor's In the Field column about Bald Eagles harassing Ospreys ("Crime Spree or Hyperbole," Autumn 2007) and remembered a sighting I had in Unity, Maine, back in the late 1980s. I was attending Unity College, which is in rural country near a huge lake and marsh that attracted many Bald Eagles and several Ospreys.

One day I was down by the marsh when I happened to look up and see an adult Bald Eagle chasing an Osprey with a fish very high up in the sky. I watched for about five minutes until they were too far away to see. I don't know if the eagle succeeded, but I assume it did. In my 30 years of birding, I have never seen an interaction like that, and I have seen many Bald Eagles and Ospreys. I would consider that behavior to be very rare in general but might be more frequent in some areas.

ANDREW BLOCK
BRONXVILLE, NEW YORK







JIM McGINITY (3)

I have been birding for over 30 years with a number of those years spent in the Osprey and Bald Eagle rich waters of Florida. I have observed many Ospreys and a handful of Bald Eagles with only a few interactions. Usually, the Bald Eagle will fly in, briefly chase the Osprey, then fly off. This past spring I witnessed an incredible exception. I was hiking the Osprey Trail at Honeymoon Island State Park, Florida, when I heard an eagle call. I looked up just in time to witness what could only be called the avian version of a "smash and grab."An adult Bald Eagle came from above and chased an Osprey that was carrying a freshly caught mullet. The Osprey tried a few evasive maneuvers to no avail. The Bald Eagle flew up behind the Osprey and crashed into it, forcing the Osprey to drop the fish. The eagle wasted no time in snatching the fish in midair before flying off. Fortunately, I was able to photograph the entire sequence *(left)*.

Despite this spectacular interaction, I believe that these chases are relatively rare. Like most predators, the eagles are opportunistic and, when they cross paths with an Osprey carrying a fish, it is only natural for them to try to get an easy meal.

JIM McGINITY
DUNEDIN, FLORIDA

On October 6, 2007, I attended a hawk watch sponsored by PPL Electric Utilities at Pinnacle Overlook Park, a spectacular cliff, 537 feet above a sharp bend in the Susquehanna River, a few miles above Holtwood, Pennsylvania. It was very foggy early and most of the people left. When the fog cleared around 10:30 A.M., only the two PPL naturalists and two or three amateurs were left. We immediately started seeing hawks, including a Peregrine

Falcon and the first Merlin ever recorded at a PPL-sponsored hawk watch.

Around 11:00 A.M., I spotted an adult Bald Eagle flying over the water and called it. One naturalist immediately said, "He's chasing an Osprey." Then the other naturalist said, "The Osprey has a fish." Within seconds, three other adult eagles joined in, and the four of them harassed the Osprey from all sides. It finally dropped the fish, and the eagles immediately left without attempting to recover it. After what seemed like a very long time, the fish landed in the river with a huge splash.

THOMAS E. MERCER
WILLOW STREET, PENNSYLVANIA

We have been members of the Cornell Lab of Ornithology for many years and always enjoy *Living Bird*. Jack Connor's recent article couldn't have come at a more appropriate time. We live in Philadelphia and bird Cape May in spring and fall, and we have heard the tales of the Bald Eagle and Osprey dogfights but never witnessed it—until this year. In a beautifully clear blue sky, just above the hawk-watch platform, we witnessed the resident Osprey get robbed of its fish by a migrating Bald Eagle. Dozens of hawk watchers were dazzled by the display right overhead. Amazing!

LINDA WIDDOP
PHILADELPHIA, PENNSYLVANIA

## *From the Editor*

As you can see in this latest issue, some exciting changes have been taking place with *Living Bird*. It's bigger than ever and has a new look, with several brand-new columns and departments and more of the fabulous bird photographs and feature articles you've come to expect with this magazine. And this is just the beginning. Stay tuned in the months ahead as we make even more improvements.

For the debut issue of the redesigned *Living Bird*, we decided to focus on one of North America's most spectacular—and threatened—wilderness areas, the North Slope of Alaska. Our own Gerrit Vyn, ace wildlife photographer and audio producer in the Lab's Macaulay Library, takes us on the ride of a lifetime up the Dalton Highway, through the mighty Brooks Range, all the way to the Arctic Coastal Plain. And freelance writer (and former Alaska resident) Lisa W. Drew reports on the paradox of Alaska's National Petroleum Reserve—a whopping 23.5-million-acre piece of public land containing habitat that is as vital to bird populations as any in the famed Arctic National Wildlife Refuge.

Continuing the Alaska theme, our photography column, Picture Perfect, takes us to the rugged Pribilof Islands, where Bobby Harrison explains how to take spectacular pictures of nesting seabirds in some of the worst conditions for photography in the world. This marks a shift in the focus of Picture Perfect. Instead of concentrating only on photography techniques, it will now be a kind of specialized travel column, taking readers to particular bird hotspots and explaining how to take the best possible pictures there.

We are happy to introduce John Schmitt's new column, A Naturalist's Notebook, featuring his remarkable bird illustrations and field notes, drawn from his observations of bird behavior in the field. John and I go way back, to the days when we lived together in a rock quarry on the campus of the University of California at Santa Cruz, working on a project aimed at boosting the number of nesting Peregrine Falcons in the state.

To John and the other new column contributors in these pages, welcome aboard.

*Tim Gallagher*
*Editor-in-Chief*

## Remembering Glen Woolfenden

It was with considerable sadness that I read of the passing of Glen Woolfenden. We had been acquainted for several summers at the New Jersey shore, where we vacationed.

In particular, I remember the summer of 1955, when Glen was collecting data for his Master's thesis, which concerned a breeding study of sparrows in the marshes near Lavallette, New Jersey. I was impressed with his diligence and his gentleness and regard for the birds. It was also quite entertaining to watch the oddly colored sparrows getting on with their lives in the marsh—he had caught them in a mist net and then marked them with red and green patches to keep track of them. That was an enjoyable summer for me, and I am sure a very productive one for him. Glen had been employed that summer as steward and general handyman at the Lavallette Yacht Club, so he could be close to his birds and the marsh. I had not spoken with or seen him in almost 50 years, but I did enjoy coming across his name in various publications.

JOHN W. FITZPATRICK

JOHN LINDENTHAL
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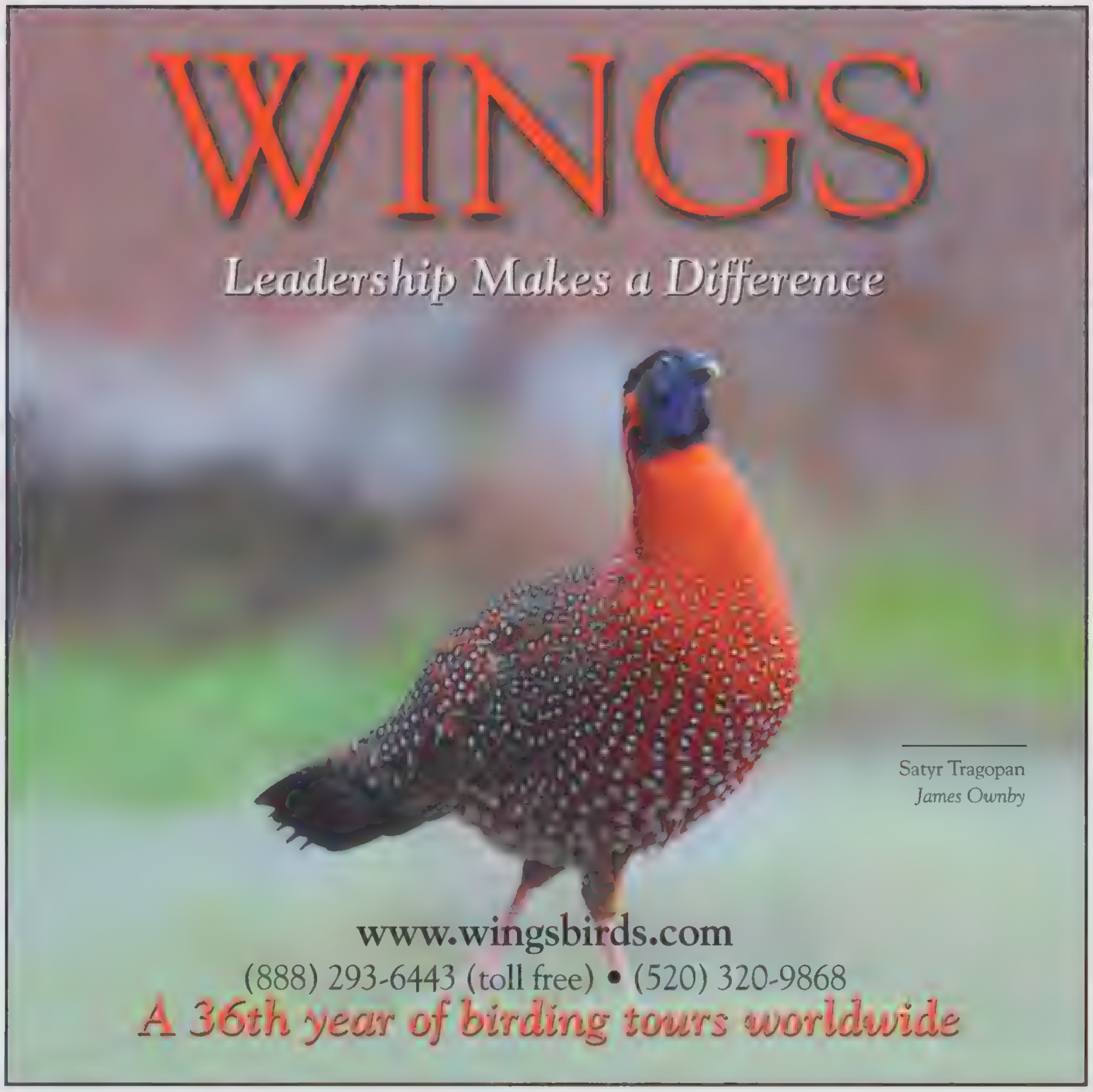

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PETER WREGE

# Monitoring Forest Elephants by Ear

How do dynamite blasts from oil exploration in central Africa affect the movements of endangered forest elephants? In the steamy jungles of Gabon, scientists from the Cornell Lab of Ornithology's Elephant Listening Project (ELP) are trying to find out.

For two months before oil exploration began in Loango National Park, ELP scientists recorded the elephants' long-distance calls. The group attached autonomous recording units (ARUs) to large trees near elephant paths—placing the ARUs 35 feet off the ground to escape the reach of curious trunks, and tucking away the wires to foil nimble monkey fingers.

"We know only roughly how many forest elephants there are because they are hard to count in the dense jungle," says ELP director Peter Wrege. "I can't believe how hard it is to see an animal so large. One of our missions is to use ARUs to estimate and monitor populations." The ARUs also pick up gunshots, which helps pinpoint areas where poachers are hunting the elephants for ivory tusks and meat.

Once oil exploration began, the team employed the same technology. The oil company set off explosions to get a geological profile of the earth below. Each ARU was attached to a geophone buried in the ground to record seismic waves from the blasts. The scientists used the data from multiple ARUs to pinpoint the location of each detonation.

Now that the oil company exploration is finished, continued ARU monitoring is helping the team to understand how the forest elephants behave in its wake. "The elephants will almost certainly move away from the area where there are explosions and lots of human activity," says Wrege. "One of our objectives is to see whether such effects are long lasting or if the elephants soon move back into the area after the disturbance is past."

The study is part of a larger monitoring effort coordinated by the Wildlife Conservation Society. Its findings will be distributed to conservation groups and central African governments to inform future energy exploration contracts.

"Forest elephants have a fascinating and complex social system," says Wrege. "By learning more about the human impact on their behavior I'm hoping we can do what's needed to protect these magnificent animals." —*Pat Leonard*

COURTESY OF THE MARTHA STEWART SHOW

"This project will change the way you look at birds!" declared Martha Stewart as she introduced segments featuring Project FeederWatch leader David Bonter on her popular television show. The program aired across the country on October 17–18, 2007, and resulted in more than 1,000 new FeederWatch participants. Bonter's take on the entire experience: "Surreal!"

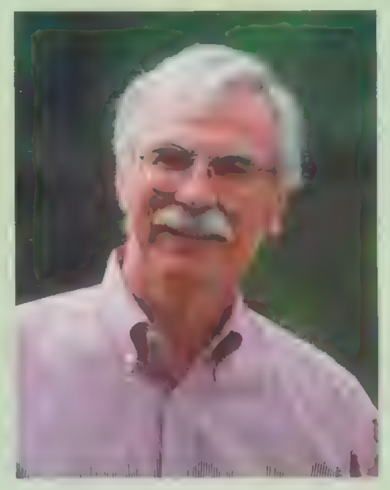
# *The View from Sapsucker Woods*

There are places on our planet that can be appreciated, revered, and fully protected only in the context of earth time. The Grand Canyon is an obvious example, because it displays time so explicitly and majestically. Vishnu Schist underlying the inner gorge is 2 billion years old, the Kaibab Limestone on the rim is "only" 230 million years old, and the Colorado River took a mere 2 to 3 million years to cut through this gigantic time column.

Alaska is a less obvious example. Reverence for Alaska requires not just an appreciation of the gargantuan forces of glaciation and mountain building, but also a willingness to understand and to accept humanity's place in earth time.

Full understanding of time is a rare privilege today, given our preoccupations with youth, technology, and instant access to everything. For this reason, I begin my conservation biology classes at Cornell by having the students stand up and form a line beginning at the back wall, snaking down a side wall, and ending with the last student in front, facing the class. Each student represents 100 million years, so 35 students present the entire history of life on earth. (The same exercise with a larger group can begin at earth's origin, at 4.5 billion years, or even the big bang, at 14 billion.)

From back to front, we trace the big events of evolutionary time: DNA, nucleated cell, photosynthesis, multicellular life, flowering plants, backbone, shelled egg, flight, dinosaur domination, the cataclysmic end-Cretaceous extinction, and finally, the 60-million-year-long "age of mammals" to which we humans belong. By this point, we're focusing on the last student in the line. Dinosaurs disappeared about halfway through him. His outstretched right arm represents the age of mammals: titanotheres, uintatheres, horses, camels, sloths, saber-toothed cats, kangaroos, elephants, walruses, whales, monkeys, and the great apes—all these evolved, and many disappeared, over just the past 50 million years. Bipedal humanoids emerge somewhere beyond the first knuckle on my student's index finger. All of human history—yes, the origin of the world's great religions, cultures, and philosophies, the Roman Empire, the Middle Ages, the Mona Lisa, the Chinese dynasties, the great world wars—all of human history is represented by the pale, crescent tip of one student's fingernail! As I slowly walk back alongside time, I ask the students to keep our status as humble newcomers to earth time in their minds at least for the rest of the semester. If they're willing, it will help them for the rest of their lives.



JON REIS

Earth time has reached a pivotal crossroad. The path now is influenced by whether and how a single species appreciates itself, its own place in larger time, and its choices. Human culture spread across the world in the blink of an eye (about 50,000 years by most estimates), spreading diseases and unprecedented predatory technologies to every land and every sea. Our diaspora reached the Western Hemisphere just yesterday by earth time, beginning in frozen Alaska. We swarmed southward through two continents in just 12,000 years. As we had done elsewhere all around the world (except Africa, where we evolved), we colonized most of the surface area and laid waste to the vast numbers of naïve, large-bodied animals in our path. Gone in a heartbeat were mastodons, mammoths, camels, horses, sloths, sabertooths, and giant condors. Just a moment ago, we almost extinguished the great bison herds.

Today, as we work to extinguish the last of the great uncut forests, our species is beginning to ask whether it might be prudent to slow down. Could we stem our appetite and influence over so much that blossomed before us? Should we seek alternative behaviors in order to preserve and revere the last vestiges of truly wild earth—if for no other reason than to allow some future descendants the privilege of learning from these places?

Alaska remains. Thundering herds of caribou migrate through landscapes that retain their full gamut of large carnivores. Millions of waterfowl gather each summer to grow new wing feathers in the safety of endless lakes and horizons unbroken by roads. The sounds of wind, wolves, and loons prevail across one of the earth's last great regions of essentially pre-human wilderness. Must we relinquish such a place just yet? Must we declare that its earth time is over?

*John Fitzpatrick*
*Louis Agassiz Fuertes Director*

SUSAN E. SPEAR

During a monthly book reading at the Lab of Ornithology's Adelson Library, Anne James-Rosenberg shows bird wings to Ithaca-area schoolchildren and explains how their shape is adapted for flying. She also read from *Animals in Flight* by Robin Page and helped the children create their own flying creatures. The Lab's Education Department presents the book readings to elementary-school children throughout the school year. Photograph by Susan Spear.

## "You've got whales!"

They're big, majestic, and powerful—yet dangerously close to extinction. The North Atlantic right whale population is extremely fragile, with only an estimated 350 to 400 left in the wild.

Right whales are so named because they were seen as the "right whale" to hunt: they swim close to the surface, move slowly, don't sink after they're killed, and yield a lot of oil. Aggressive whaling through the 1800s greatly reduced their numbers. Today, the biggest threats to their survival are getting tangled in commercial fishing gear and colliding with ships or pleasure boats. The northern right whales' migratory corridor and calving grounds intersect busy northeast shipping lanes.

Christopher Clark, head of the Cornell Lab of Ornithology's Bioacoustics Research Program (BRP), decided to do something about the crisis. "You can't sit around and wait for other people," he says. "You have to take action." Since 1997, the Lab's bioacoustics team has been developing and deploying sophisticated underwater recording and monitoring tools to keep tabs on the whales—not only to further scientific studies, but also to help keep the whales alive by tracking their movements in real time. All of this work has resulted in a stunning precedent for conservation, now being played out in the waters of the North Atlantic.

In 2007, the Excelerate Energy Company built the Northeast's first deep-water liquefied natural gas terminal in Massachusetts Bay. The company was required to monitor the impact of its activities on the right whales. It also had to take action to reduce potentially harmful effects, including collisions. Excelerate agreed to monitor for right whales before and during construction, and for at least the first five years of port operations—possibly even for the life of the facility, which could be up to 40 years. They contracted the Lab's bioacoustics team to do the monitoring.

"This is the first time the U.S. Coast Guard, the Army Corps of Engineers, and government regulators have said, 'If you want to operate in this area, and pass through a marine sanctuary and an endangered habitat, you have to become an active participant in the mitigation monitoring program," says Clark. "Right now this applies to one company, but eventually it could apply to anyone wanting to do business offshore."

Excelerate's massive construction project included the installation of 15 miles of new pipeline on the sea floor connected to a huge offshore platform held in place by chains stretching a mile in every direction. Offshore terminals are considered safer and more efficient than land-based ports.

In December, two Excelerate ships began offloading liquid natural gas into the pipeline to be piped ashore to supply Boston and the Northeast.

The Lab's bioacoustics team set up a

MARC DANTZKER

*Researchers deploy an acoustic monitoring device to track whales in Boston Harbor.*

grid of 19 autonomous "pop-up" recording units on the ocean floor in the construction zone. Every three months, the units received a signal to pop up to the surface, enabling the team to retrieve their sound data. They archived the data, creating an acoustic record of all events related to the construction and operation of the terminal.

On the water's surface, six high-tech auto-detection buoys also collected acoustic information. Using cell-phone or satellite technology, the buoys sent live data to a web site at the Lab of Ornithology—giving BRP staff a real-time acoustic snapshot of both construction and whale activity. The Woods Hole Oceanographic Institution designed and built the buoy platform and anchoring system, and the Lab's bioacoustics team provided the electronics module.

Now that the natural gas terminal is in operation, 10 other buoys are monitoring the Boston shipping lanes—which have been shifted to an area less likely to be frequented by whales. The buoys send an alert to the Lab when a whale call is detected.

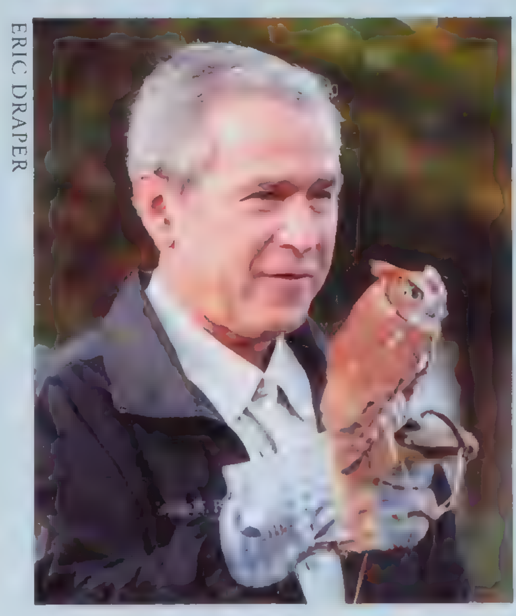
"I carry a cell phone around with me and get calls telling me 'You've got whales!'" says Clark. The bioacoustics analysts are on duty 24/7 to screen the alerts and sound files coming in. If the analysts confirm the presence of a right whale, they communicate its location through an automated ocean traffic control system maintained by the U.S. Coast Guard. Ships receive the message that whales are in the area via transponders that are required on all large vessels. When the message arrives, the captains must reduce speed and remain on the lookout for the whales for the next 24 hours.

Access to buoy data, maps, and sound clips will eventually be made public. For more information, visit the Lab's web site at www.birds.cornell.edu.

*—Pat Leonard*

## *President Announces Strategy for Migratory Bird Conservation*

In a positive step for bird conservation, President George W. Bush announced a new national strategy aimed at preserving key habitats for migratory birds. Speaking at the Patuxent Research Refuge in Laurel, Maryland, on October 20, 2007, Bush drew upon recommendations from a report spearheaded by the Cornell Lab of Ornithology in partnership with the American Bird Conservancy, Manomet Center for Conservation Sciences, National Audubon Society, North American Bird Conservation Initiative, Partners in Flight, PRBO Conservation Science, and The Nature Conservancy.



ERIC DRAPER

The report pointed out dramatic declines in bird populations and recommended six actions the federal government could take to restore North American birds: expanding private and public support for national wildlife refuges, increasing support for public-private conservation partnerships, expanding conservation incentives for private landowners, enhancing protections for coastal and marine migratory birds, partnering with Mexico to secure key wintering habitats, and instituting a "State of the Birds" report to measure environmental health.

Bush announced initiatives based on all six recommended actions. These included restoring 200,000 acres of habitat for migratory birds in national wildlife refuges by 2009 and raising $3 billion in public-private funding to help restore wildlife habitats in national parks; adding three new Joint Ventures to help conserve birds along the Rio Grande corridor, in the Appalachian Mountains, and on the northern Great Plains; allocating $509 million in 2008 to the U.S. Department of Agriculture Farm Bill conservation programs that assist landowners in preserving habitat for migratory birds; directing the secretaries of State and Interior to increase participation in the "Agreement on Conservation of Albatrosses and Petrels"; working with the Mexican government and nongovernmental organizations to restore and protect five priority habitats in Mexico with $4 million committed in fiscal year 2007; and requesting a "State of the Birds" report from the Secretary of the Interior by 2009 to chart progress and identify bird species that need additional protection.

"We are heartened by these bold initiatives," said Fitzpatrick. "The President and his staff are closely following many direct recommendations of the conservation community."

To read a transcript of the President's address or to see the original report, "Restoring North America's Migratory Birds," visit www.birds.cornell.edu/publications/restoringbirds.html.

*—Miyoko Chu*

TIM GALLAGHER

# How did the chicken cross the sea?

We can all predict what would happen if a chicken attempted to fly across the Pacific Ocean: it would not get far before becoming shark bait. How, then, did domestic chickens, which are native to Southeast Asia, find their way to South America?

The remains of a 600-year-old chicken dinner excavated from an ancient rubbish dump have solved the mystery of whether chickens were originally transported to South America by the first Spanish explorers or by trans-Pacific human voyagers long before the arrival of the earliest Europeans in the New World.

The Spanish explorer hypothesis has long been popular, but historians have long known of a perplexing wrinkle to that idea: early accounts reveal that when Spanish conquistadores led by Francisco Pizzaro first entered the Inca Empire in 1532, in what is now Peru, they found the Incas already raising lots of familiar-looking domestic chickens. Inca religious rituals also featured chickens. It is hard to reconcile this familiarity if the Incas had obtained chickens by long-distance trade only a few decades earlier, after Columbus and other Europeans first made landfall.

The other possibility is that the Inca chickens were the descendants of birds transported across the Pacific much earlier by Polynesian, or perhaps Chinese, sailors. This has been a controversial and often maligned idea in archaeological circles, in part because of the long history of incorrectly invoking long-distance connections among the major human civilizations on different continents.

The solution to the chicken mystery lies in bones recently excavated from an archaeological site called El Arenal, which is situated about two miles inland from the coast of central Chile. Radiocarbon dating of the chicken bones themselves, along with archeological dating of the artifacts they were found with, firmly date them to no later than 1425 A.D. and probably earlier—decades before Columbus first landed in America.

Just by itself, this early date indicates that chickens made it to South America before the Spanish. But where did they come from? The researchers went further and compared snippets of DNA from the Chilean bones with those of modern chickens and of bones from Polynesian archeological sites on Pacific islands. They found that the Chilean chickens were very closely related to those raised by early Polynesians. This finding firmly implicates Polynesian voyagers as the source of the earliest South American chickens. This discovery is especially notable because it provides some of the first hard evidence of contact between Polynesians and the pre-Columbian civilizations of South America.

The Inca chickens Pizarro observed were almost certainly descendants of birds transported across the Pacific over the course of nearly 3,000 years, via the steady island-by-island colonizations of Polynesian settlers. The DNA evidence further suggests that at least one present-day breed of chickens, the ear-tufted Araucana, which was derived from Chilean stock, is at least partially descended from Polynesian chicken ancestors.

Today, the Americas are home to many avian aliens, including Rock Pigeons, European Starlings, House Sparrows, and Eurasian Collared-Doves. But domestic chickens now own the dubious distinction of being the first bird species to be introduced around the entire globe by humans. *—Irby Lovette*

Storey, A. A., J. M. Ramírez, D. Quiroz, D.V. Burley, D. J. Addison, R. Walter, A. J. Anderson, T. L. Hunt, J. S. Athens, L. Huynen, and E. A. Matisoo-Smith. 2007. Radiocarbon and DNA evidence for a pre-Columbian introduction of Polynesian chickens to Chile. Proceedings of the National Academy of Sciences USA 104: 10335-10339.

## *Following the birds that follow the ants*

### *DNA analysis sheds light on evolution of this unique behavior*

When thousands of army ants go on the march, Central and South American rainforests erupt with hordes of other insects and small creatures scurrying to get out of the way. Many species of birds have learned that following the marauding ants means a feast, and over millions of years of evolution some species have lost their ability to find food any other way.

DAN LEBBIN

Using modern genetic techniques, a new study traces the evolution of army-ant-following behavior in the typical antbirds and finds it has been around for up to six million years. The behavior has become more and more specialized—to the point where some species depend entirely on ant swarms. These are the "professional" army-ant followers.

"These birds depend almost solely on one species of army ant, called *Eciton burchellii*," says study author Robb Brumfield. "This makes the professional army-ant-followers sensitive to many of the very real threats to this ecosystem, like deforestation, global warming, and other similar issues."

Brumfield, assistant curator of genetic resources at the Louisiana State University Museum of Natural Science, led the research team whose findings appear in *Molecular Phylogenetics and Evolution* (October 2007). He first became interested in army-ant-following behavior in birds while working in Peru assisting then-graduate student Ken Rosenberg, now director of conservation science at the Cornell Lab of Ornithology, and a coauthor of the study.

"What's exciting to me is that we now know army-ant-following behavior has evolved a couple of different times in different groups of antbirds," says Rosenberg, "But once it evolved the behavior never disappeared. It just became more and more pronounced in some species and became what we call 'obligate' behavior. If these birds don't find an army ant swarm they don't know how to feed."

"If anything affects the ant population, it could be devastating for these birds," says Brumfield. "But what is perhaps most surprising is that, despite the bird's dependence on one primary ant species, the specialization has persisted for millions of years."

"Nature is like a giant jigsaw puzzle," says Rosenberg. "The ecology, the environment, the evolution of behavior over time—each new technique we develop, such as this genetic analysis, allows us to look at the world through a whole new window."

—*Pat Leonard*

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WINGSCAPES

# Border Traffic

by David S. Wilcove

Illustration by John Schmitt

## *The challenge of saving Mexico's vanishing Thick-billed Parrots*

The migration of the Thick-billed Parrot remains a mystery to ornithologists, who do not know precisely where the birds go when they leave their nesting grounds in the winter. But it's easy to track how the species has migrated through the pages of Roger Tory Peterson's *Field Guide to Western Birds.* In the first edition, published in 1941, the Thick-billed Parrot perched near the middle of the book, next to the cuckoos. Back then, Peterson described it as an occasional visitor to the mountains of southeastern Arizona and southwestern New Mexico. By the second edition, published in 1961, the parrot had flown to an appendix in the back, where it carried the epitaph "[f]ormerly a sporadic visitor to mts. of se. Arizona, sw. New Mexico. Unrecorded since 1922." By the third edition, published in 1990, the species had returned to the main text, accompanied by the following statement: "Formerly a sporadic visitor to mountains of se. Arizona, sw. New Mexico. . . . Recently a small number from Mexico have been released into the Chiricahuas (Arizona) with the hope that a resident population will become established."

That reintroduction effort fizzled when the last of the released birds disappeared in the mid-1990s, leaving Mexico as the species' sole home. If a fourth edition of Peterson's venerable guide is produced, the Thick-billed Parrot is likely to migrate once again to the appendix, this time for good.

As regrettable as the Thick-billed Parrot's disappearance in the United States may be, its status in Mexico is of much greater concern, for Mexico has always been the species' stronghold. Unfortunately, it is highly endangered there as well, due to a combination of habitat destruction and capture for the pet trade. Moreover, given the peculiar ecology of the species and the history of land ownership in Mexico, saving this magnificent green-and-red parrot will not be easy.

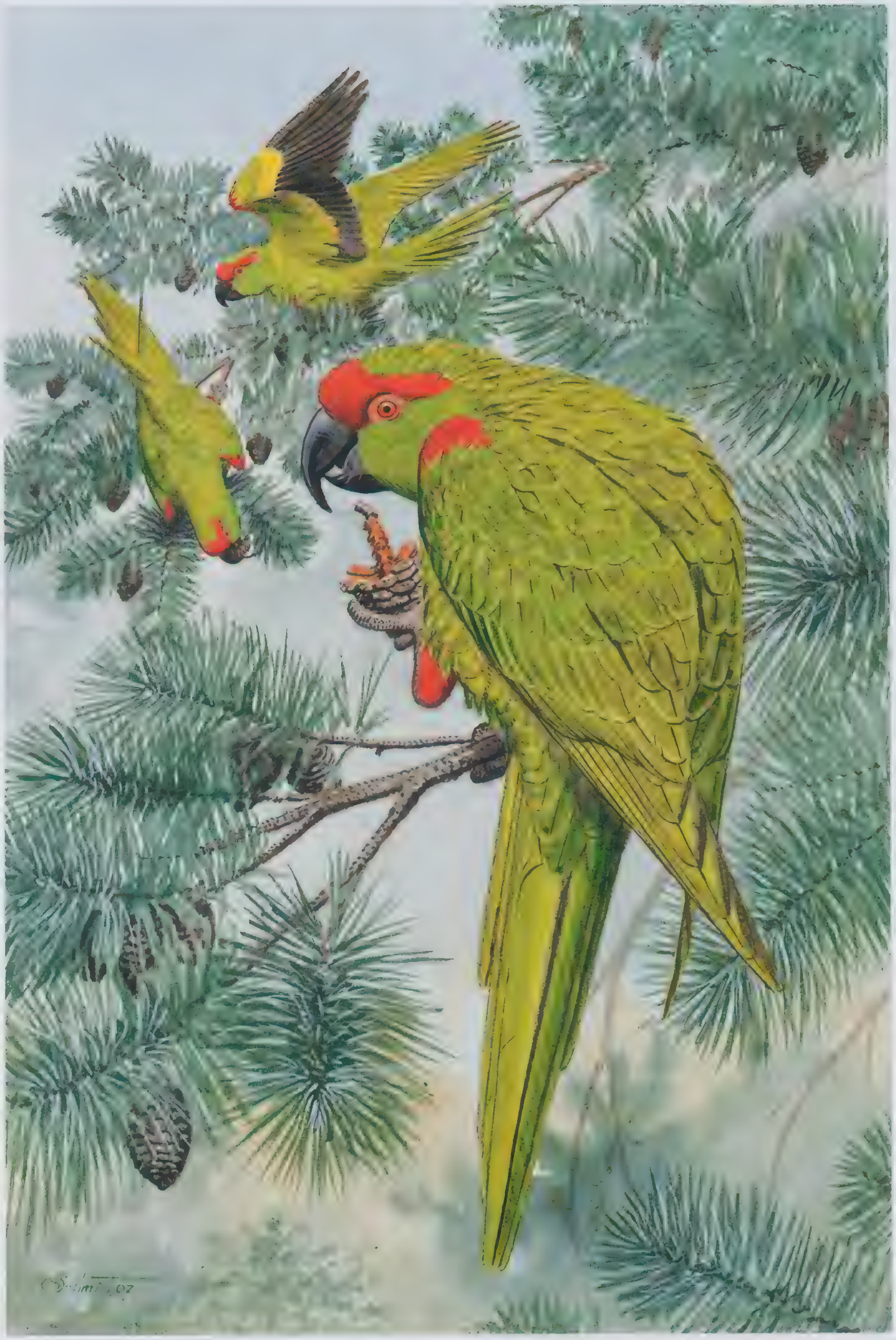
Thick-billed Parrots are peculiar birds. Unlike most members of the parrot family, they shun warm, tropical forests in favor of high-elevation pine forests. Pines, in fact, are crucial to almost every aspect of their lives. Thick-bills feed almost exclusively on pinecones, and they prefer to nest in cavities in pine trees as well. A century ago, this degree of dietary and habitat specialization was not a bad strategy—the Sierra Madre Occidental was covered with millions of acres of old-growth pine forest—and the birds must have numbered in the tens of thousands (or more). But in recent decades, loggers have been hard at work in the Sierra Madre, stripping away the big pines. Today, the region remains largely forested, but that forest consists almost exclusively of young stands. Less than one percent of the old growth remains. The Thick-billed Parrot, in turn, has suffered a tremendous population decline. A survey in 1995 estimated that only 1,000 to 4,000 individuals remained in the wild.

Had Thick-billed Parrots been wholly dependent on old-growth forests, they would surely be extinct by now. In fact, the birds can forage successfully in younger stands, although those stands probably produce fewer pinecones per acre than the old growth. A more serious problem for the parrots may be the availability of nest sites in young forests. Thick-bills nest in tree cavities, especially those constructed (and abandoned) by woodpeckers. Older forests tend to have higher densities of woodpeckers, due to the greater availability of dead and dying wood and this, in turn, means more cavities for the parrots. Moreover, one prominent cavity-maker in the Sierra Madre Occidental, the Imperial Woodpecker, is now probably extinct, and its disappearance may have put a significant dent in the Thick-billed Parrot's housing supply. A secondary problem for the parrots is the pet trade. Although not wildly popular with aviculturists, thick-bills are enough of a novelty to fuel an illegal trade in wild-caught birds.

Conservationists eager to save the Thick-billed Parrot must contend with two additional factors, one ecological and the other sociological. First, as noted earlier, some thick-bills migrate. They disappear from the northern Sierra Madre Occidental in the autumn and do not reappear until the spring. Where exactly they go during that time is a mystery, but winter flocks have been recorded in Durango, Sinaloa, Nayarit, and Jalisco, south and east to Colima and Michoacán. Without a clear understanding of their migratory behavior, conservationists cannot develop a comprehensive plan to protect the species. Second, in the wake of the Mexican Revolution, much of the land in Mexico was redistributed to the people in the form of communally owned ejidos. All of the members of an ejido must agree to any change in land management within its borders; thus, conservationists must work with every member of the community to effect any substantial change in practices.

Fortunately, the American Bird Conservancy (ABC) and the Mexican environmental organization ProNatura are willing to take on the challenge of protecting this wandering, charismatic parrot. The mountains around the Chihuahuan town of Madera are one of the few remaining strongholds for the Thick-billed Parrot. In this region, the parrots tend to nest very near to each other, resulting in loose aggregations of breeding pairs. A single old tree, riddled with woodpecker cavities, may harbor multiple nesting pairs of thick-bills. Moreover, in Madera the parrots will nest in old aspens as well as pines. ABC and ProNatura are trying to protect three key nesting areas. Two of the sites are owned by an ejido and will require patient negotiation to achieve permanent protection. In the meantime, the ejido has agreed to hold off logging the areas while negotiations (and field research) continue. The third site is privately owned, and ABC has raised the necessary funds to buy it.

Neither ABC nor ProNatura has focused on the surrounding forests, where the parrots forage for pinecones. They believe—with good reason, I think—that securing the breeding areas is the more urgent task. But down the road, they intend to make sure that the thick-bills have adequate foraging habitat. Nor do they know where the birds go when they leave the Madera area in the winter. Given the pace of technological advances in telemetry, it should soon be possible to fill this critical gap in our knowledge by capturing some of the birds, fitting them with satellite transmitters, and tracking them during their migration.


*"As regrettable as the Thick-billed Parrot's disappearance in the United States may be, its status in Mexico is of much greater concern, for Mexico has always been the species' stronghold."*

Last July, I was part of a small group of bird watchers who visited Madera in search of Thick-billed Parrots. Our guides were Sheri Williamson and Tom Wood of the Southeastern Arizona Bird Observatory. Boarding a van in Bisbee, Arizona, in the early morning, we wandered south through the dry hills of Sonora, then east into Chihuahua. By late afternoon, we had arrived in Madera. The next day, we left town at dawn and headed into the mountains, driving through miles and miles of pine forest, interspersed with small pastures and farm fields. I was struck by the fact that very few of the pine trees were especially tall or old, unmistakable evidence of the pervasive impact that logging

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has had in the Sierra Madre Occidental.

At a particularly fine patch of forest, Sheri and Tom stopped the van, and we piled out with our binoculars at the ready. The songs and calls of the birds brought back memories of my visits to southeastern Arizona, not too surprising, since we were only a couple hundred miles south of the border. I listened to the clear, whistled *José María* of a Greater Pewee, the soft yelping of an Elegant Trogon, and the silly peeps and chirps of a flock of Pygmy Nuthatches. Flocks of Mexican Chickadees, Bridled Titmice, and Olive Warblers flitted through the pines. Painted Redstarts chased insects in the oaks.

> And then I heard the laughter, reminding me of a distant band of revelers heading home after an all-night celebration—a raucous, happy sound. "Thick-billed Parrots!"

And then I heard the laughter. It was an odd thing to hear in the middle of the forest, reminding me of a distant band of revelers heading home after an all-night celebration—a raucous, happy sound. "Thick-billed Parrots!" Sheri shouted. We scanned in every direction, but the forest was too dense and the birds too far to permit a view. Later that day, Sheri and Tom took us to a patch of dead and dying aspens where the parrots gather each afternoon before heading off to roost. Dozens of emerald-green Thick-billed Parrots adorned the trees. They talked and squabbled, preened each other, climbed up and down the branches and, in general, brought a welcome touch of mayhem to the stolid forest. As the light began to fade and parrots headed off to roost, I thought about their precarious existence—the continued logging of the pine forests, the poachers, the mysterious migration they would undertake in a few months—and I wondered whether their laughter would still be heard 50 years from now. ◆

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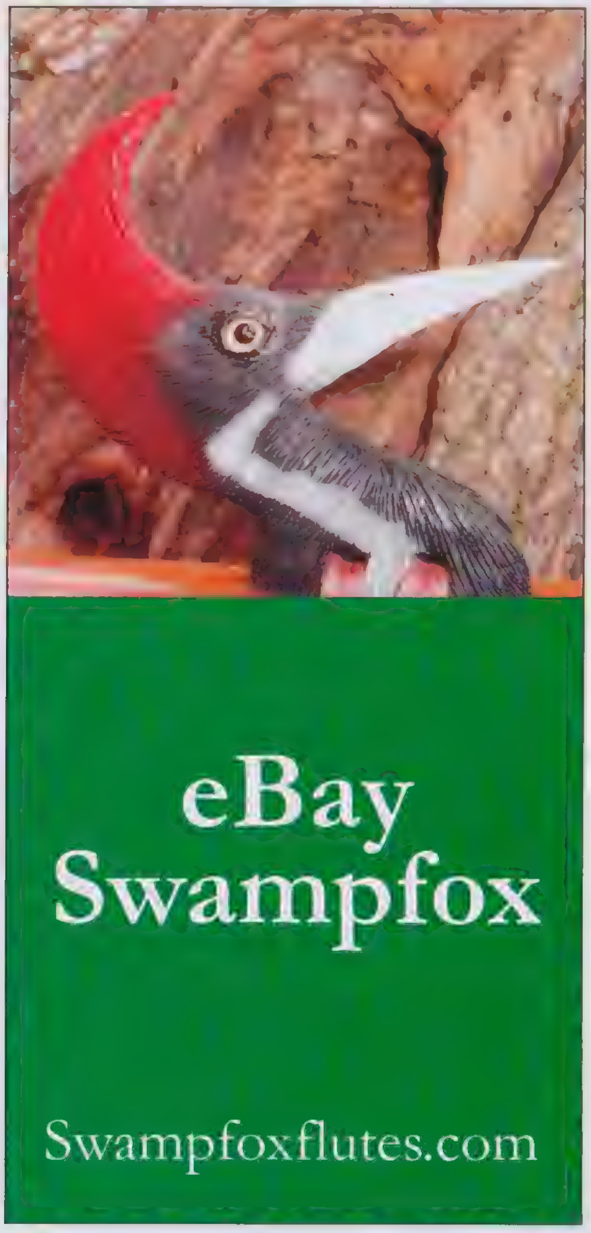
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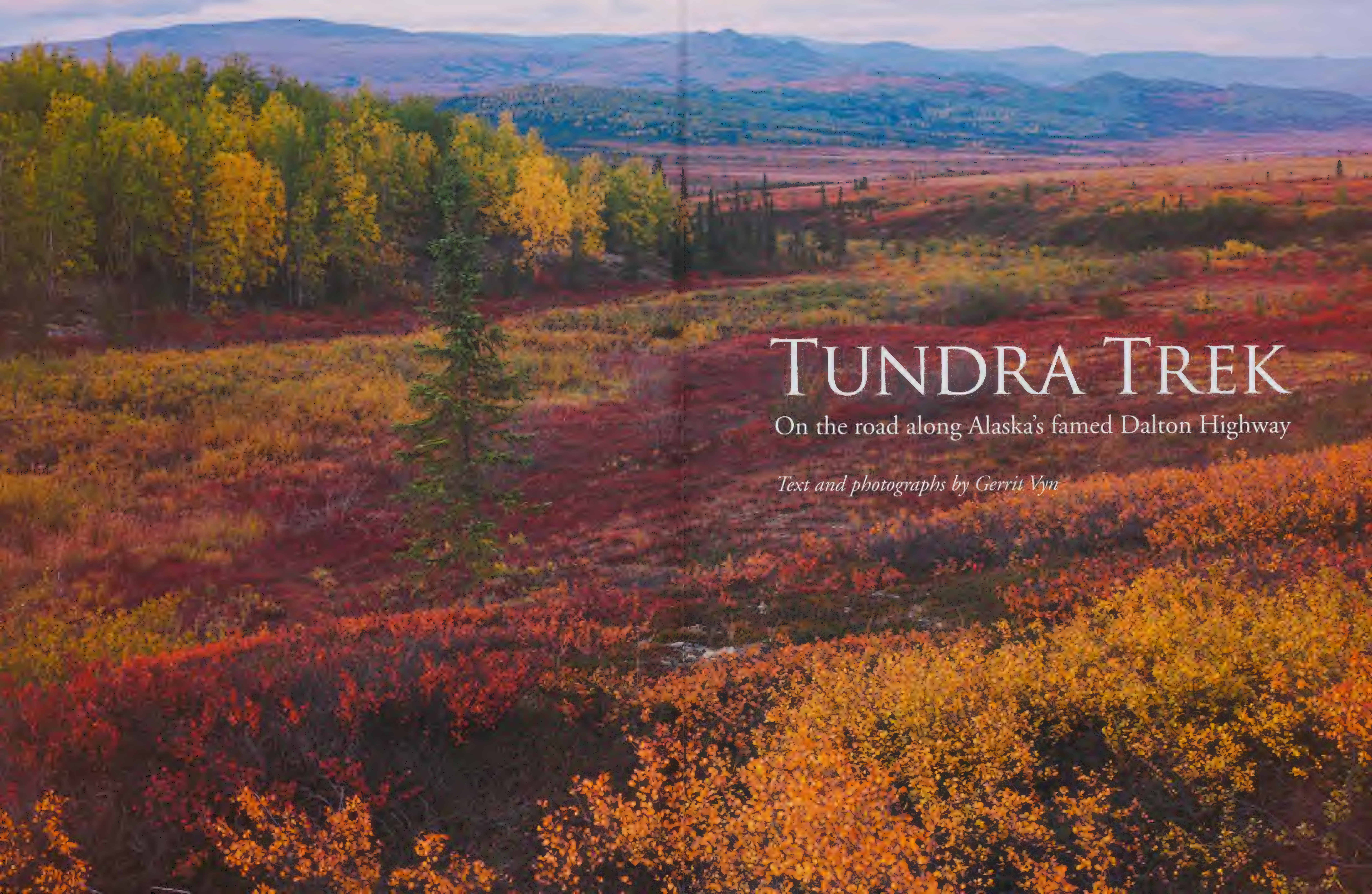


# TUNDRA TREK

## On the road along Alaska's famed Dalton Highway

*Text and photographs by Gerrit Vyn*

Unlike most people who have experienced the far north, I saw arctic tundra for the first time through the windshield of my pickup truck. I had crossed the Brooks Range on a September night, guided north by my childhood fascination with maps, a road penetrating one of the few remaining vast empty spaces, and a wish to see the birds there. A green aurora borealis danced overhead, flirting with the glowing white ridges and peaks as I crossed the Arctic Divide. Earlier that day, in the boreal forest and foothills to the south, I had seen the most brilliant fall scenery imaginable: ground-hugging plants—dwarf birch, willows, and bearberry—ablaze in blood red; spruces, deep green and blue, mingled with rivers of golden birch and aspen. Above them rose rugged rocky pinnacles dusted with snow, set off by a cobalt blue sky. The wildlife sights were no less spectacular: Northern Hawk Owls hunting from the withered stunted spruces of the taiga, a grizzly bear fording the broad, braided Middle Fork Koyukuk River, and a Northern Goshawk streaking over a small pond where beavers busily prepared for the approaching winter.

In the distance were the dark barrel-chested shapes of a dozen muskox sparring beneath a leaden sky. After a few excited expletives of disbelief, I got out my binoculars and began searching for birds.

Later that night, north of the last mountains, I pulled over and parked on a vast dark plain. In the crisp fall air, filled with excitement and a tinge of lonely fear, I wriggled into my sleeping bag and slept right there, across the seat of my truck.

In the morning I was roused by an unfamiliar sound—a deep rumbling in the distance. I quickly wiped the frozen condensation from the windshield and looked outside. There I saw arctic tundra for the first time. In the distance were the dark barrel-chested shapes of a dozen muskox sparring beneath a leaden sky. After a few excited expletives of disbelief, I got out my binoculars and began searching for birds. Though most had already moved south, or to staging areas along the coast, many of the iconic species that once seemed out of reach to me showed themselves that day. I saw my first Pacific Loons in breeding plumage gliding over a still tundra pond, Red Phalaropes spinning like tops an arm's length away, and a Gyrfalcon coursing over russet tundra in pursuit of a ptarmigan. It was an exploration unlike any in my experience, and from that day on, a small piece of the arctic was no longer just a beckoning spot on the map.

Alaska's James Dalton Highway, or Haul Road, is one of the few roads on earth connecting us to the arctic. Built in 1974 to service the Trans-Alaska Pipeline and oil fields around Prudhoe Bay, it bisects some of Alaska's most remote and alluring wilderness. Not really a highway but a broad, coarsely graveled service lane, the Dalton Highway begins in the boreal forest of Alaska, 84 miles north of Fairbanks. Winding north, it traverses forest, muskeg, frigid rivers, alpine tundra, the foothills and mountains of the Brooks Range, and the North Slope. Four hundred and fourteen miles later, it terminates on the arctic coastal plain a few miles shy of the Beaufort Sea at the small industrial outpost of Deadhorse, gateway to the massive industrial oil complex that dominates the coastal plain. The road is rugged and services are extremely limited, so visitors must be self-reliant and well prepared. But for those who are drawn to empty spaces, it offers an unparalleled opportunity to discover a piece of arctic wilderness and the wildlife that lives there. After that first fall trip I knew I would someday return in spring to experience arctic birds at the height of their diversity and breeding activity. Several years later I headed up the Haul Road again.

It was early June when I departed Fairbanks and traveled north. The first evening I stopped just north of the broad Yukon River, set up camp, and dared to walk into the murky forest around midnight—this far north in June it doesn't get dark at night. A Boreal Owl was singing from the forest edge, and as I approached it took off in low flight with a protesting Swainson's Thrush following closely behind. I penetrated the wall of white spruce and pushed slowly inward, stepping lightly on the aromatic cushion of mosses, lichens, and

*Dwarf fireweed blooms in July at Atigun Pass (at right), the highest point along the Dalton Highway. This alpine area is prime habitat for Northern Wheatear, Gray-crowned Rosy-Finch, and American Pipit. At left, a bull muskox browses on willows beside the Sagavanirktok River. On previous spread, a female Spruce Grouse.*

The dawn and evening choruses at high latitudes are not as we know them in the lower 48. They meld into one, beginning around ten in the evening. The chorus does not end in darkness but continues to build in twilight until it peaks around three in the morning.

Labrador tea beneath my feet. As I moved deeper, I was filled with dread that I might meet a grizzly bear by the dim light of midnight. Overhead a pair of singing Solitary Sandpipers arced in a display flight, appearing from time to time through openings in the trees. Other birds were singing too, and after retreating to my tent from the forest, I realized that the chorus was actually beginning to pick up. The songs of thrushes, sparrows, and an energetic Alder Flycatcher drifted in and out of my sleep.

The dawn and evening choruses at high latitudes are not as we know them in the lower 48. They actually meld into one, beginning at around ten o'clock in the evening with the first thrush songs. The chorus does not end in darkness as it does farther south, but continues to build in twilight until it peaks at about three o'clock in the morning. By eight in the morning, many birds have stopped singing regularly, and at three or four in the afternoon it is difficult to find a bird singing anywhere.

The songs of Swainson's Thrushes and White-crowned Sparrows are ever-present in the boreal chorus. Songs of Ruby-crowned Kinglets burst energetically from the tops of white spruces, and the songs of Lincoln's Sparrows ring from the depths of lowland patches of black spruce. Orange-crowned Warblers, Yellow-rumped Warblers, Fox Sparrows, and to the north, Gray-cheeked Thrushes are also prominent and widespread. I quickly realized that to experience the birds fully I would have to adjust my schedule to theirs, being more active by night than by day.

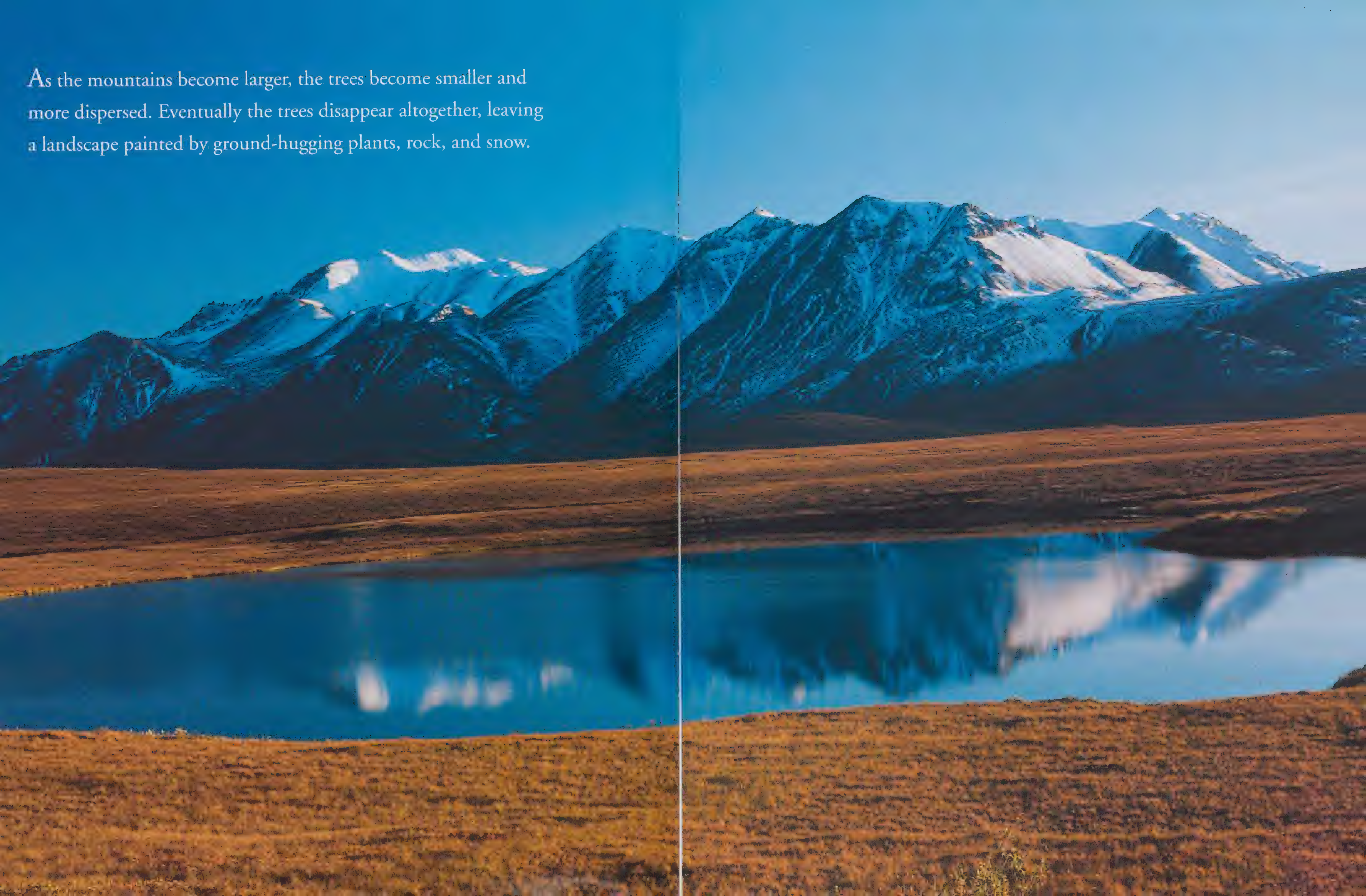
*A male Pectoral Sandpiper (below) surveys his competitors between display flights on a windy morning in early June. On the facing page, a male Bluethroat, normally an elusive, skulking species, perches conspicuously and even bursts into song flights for the few brief weeks each year when it is advertising for a mate.*

Early the next morning, I took a walk along a roadside burn. Pine Grosbeaks and Olive-sided Flycatchers sang from the tops of snags, the flycatchers sallying out from time to time to dispatch flies with a resounding snap. Bohemian Waxwings buzzed and foraged on ground-growing crowberries preserved by winter's snow, and a pair of American Three-toed Woodpeckers worked busily to excavate a nest cavity. In the distance a pair of Great Horned Owls hooted in duet, and family groups of Gray Jays moved by, quiet one moment and then startling me with loud piercing calls the next.

The boreal forest continues on and on. Each rise in the road reveals the immensity of the landscape. On the hillsides, patterns of dark spruce twist and turn amid fresh green aspen and birch, showing the paths of past fires. Farther north, beyond the small settlement of Coldfoot, the rugged foothills of the Brooks Range begin to encroach on the highway. Many of the foothills loom over the Middle Fork Koyukuk River valley and the Dalton Highway it encompasses. As the mountains grow larger, the trees become smaller and more dispersed. Eventually the trees disappear altogether, leaving a landscape painted by ground-hugging plants, rock, and snow. Robert Marshall, a pioneer in wilderness preservation, mapped and explored portions of the Brooks Range more than 70 years ago by foot, boat, and sled. He described it as "endless mountains rising and falling as if the waves of some gigantic ocean had suddenly become frozen in full motion."

After several days of camping in these foothills, I began the short climb over the mountains toward Atigun Pass. Because the weather had deteriorated and the forests had become dismally quiet, I felt a bit dejected and wasn't expecting much in the way of birds. It's remarkable, though, how quickly a day can change. As I traversed the Chandalar Shelf, the weather softened and the russet tundra began to glow beneath a diffuse sun and layered chalky sky. I stopped to soak up the expansive view over the headwaters of the Chandalar River and stepped out of the truck to find five species of sparrow in song: White-crowned, Fox, American Tree, Savannah, and Golden-crowned. From a willow draw above me burst a male Rock Ptarmigan in display

As the mountains become larger, the trees become smaller and more dispersed. Eventually the trees disappear altogether, leaving a landscape painted by ground-hugging plants, rock, and snow.



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flight, muttering its comical undertones. A Short-eared Owl, on mothlike wings, flew past across the tundra, and as I tried to track down a singing Golden-crowned Sparrow, I spotted a grizzly bear sow meandering across the hillside above me.

Energized and excited by the activity around me, I drove on and stopped to explore an icy stream. There I watched a pair of Harlequin Ducks swim against the cold current of the thawing landscape and a pair of Wandering Tattlers probing quietly along the rocky shore. A bit higher, near the pass, several Northern Wheatears and American Pipits sang overhead in flight, and Gray-crowned Rosy-Finches, Snow Buntings, and Baird's Sandpipers shared a recently thawed hillside with two bachelor Dall sheep chewing their cud.

After crossing Atigun Pass, the road descends through a long glacial valley to the North Slope. The gently rolling landscape is carpeted in dry tussock tundra, interspersed with small lakes, streams, and wide braided rivers. Smith's Longspurs run among the tussocks singing their simple whistled songs, and American Golden-Plovers perch erect, on constant lookout for predators. The bluffs along the Sagavanirktok River provide some of the few nesting sites beyond the mountains for raptors, such as Gyrfalcons, Peregrine Falcons, Rough-legged Hawks, and Golden Eagles. Large mammals are also more conspicuous in the open treeless terrain. Visitors commonly encounter caribou, muskox, red fox, and grizzly bear, along with the more elusive wolf and wolverine.

It was with raptors in mind that I hiked along one of the river bluffs of the Sagavanirktok River during my first afternoon beyond the mountains. The sun was shining brightly and Lapland Longspurs, kiting in song flight, provided a melodious backdrop as I hiked. From a ridgeline in the distance I saw several Whimbrels giving their long bubbling songs in gliding flight. Tundra flowers—lousewort, dryas, lupine, and arctic poppy—were beginning to bloom and provided a diversion as I navigated the ankle-biting terrain. Before long I arrived at a loose sodden precipice above the river, where the whistled screams of a pair of Rough-legged Hawks rang out over the din of the river rapids. On broad wings they circled, drifting in and out of view, hidden by the bluffs below. Further on the harsh *kak-kak-kak* calls of two Peregrine Falcons drew my attention to their nest. In a tuft of grass below I could see their three cinnamon-colored eggs perched precariously beyond the reach of most terrestrial predators. Responding to the birds' request that I move on, I left the river and wandered up a streamside willow draw in search of something else. There I found my first Bluethroat perched atop a waist-high willow, where it sang its rambling repeated phrases, mimicking many of its tundra neighbors. I recognized the vocalizations of redpolls, wagtails, and longspurs in the Bluethroat's repertoire, and wondered if some of the unfamiliar sounds might have come from a continent away.

Birds travel incredible distances to breed on the North Slope and arctic coastal plain of Alaska. They converge on the region from wintering grounds spanning the globe. The Bluethroat, weighing less than an ounce, wings its way from wintering grounds in southeast Asia, across the Asian continent and Bering Sea, and then across Alaska, to sing and nest among knee-high willows beside a trickling tundra stream. The Northern Wheatear also flies across Asia, but from wintering grounds shared with elephants and lions in East Africa. Arctic Terns, jaegers, and Sabine's Gulls lead pelagic lives for nine months of the year in the southern oceans as far away as the Antarctic ice shelf. The Arctic Tern's journey covers as much as 30,000 miles in a year. Tundra Swans arrive in flocks from coastal wetlands along the eastern seaboard of the United States and quickly disperse with their lifelong mates to their historic nest sites. The Yellow-billed and Pacific loons that nest north of the Brooks Range spend their winters foraging in the coastal waters off Russia and Japan. Baird's Sandpipers travel through the Americas, following the western mountain cordillera from wintering grounds in South America. American Golden-Plovers and Buff-breasted Sandpipers also migrate from South America, where they winter on the dry pampas of Argentina. Wandering Tattlers and Bar-tailed Godwits migrate from islands in the South Pacific. The godwit makes a nonstop 7,000-mile autumn flight over open ocean from Alaska to New Zealand. When I think how far these birds come—literally from around the world—to nest on the North Slope and arctic coastal plain of Alaska, I can scarcely fathom the gall of some politicians, who call the region a wasteland. The millions of birds that converge there each year provide a stark statement about the value of arctic ecosystems and the abundant resources they provide to the species that return there year after year to rear their young.

The following day I moved north again, to the arctic coastal plain and the town of Deadhorse, terminus of the Dalton Highway. South of town, the bird diversity and abundance swells in the polygonal ponds and wet tundra of the coastal plain. En route, I saw phalaropes, shorebirds, loons, geese, and a lone Snowy Owl sitting on a distant hummock. In town, a pair of King Eiders was joined by a second pair, prompting the two males to engage in a bout of displaying, thrusting their palettes of red, yellow, green, and blue forward, while issuing deep resonating dovelike coos. The females, equally beautiful in their velvety chevron browns, paid little attention to the showy males and foraged quietly in the shallow pond.

After stuffing myself at a buffet in the local hotel, I moved a few miles south of town and set up camp on a broad gravel bar beside the Sagavanirktok River. There, as loose flocks of Pomarine Jaegers winged steadily by, I took a long afternoon nap to prepare for an evening I had been anticipating since my journey began. In the distance I could hear the shorebirds getting warmed up.

If you only experience shorebirds during migration or on their wintering grounds, you scarcely know them. On their breeding grounds, particularly in their nuptial displays, they become something quite different. No longer the birds you see wheeling in flocks or chattering softly on mudflats or shorelines, they become fiercely independent, territorial, and vocal. The males

*On a thawing lake in early spring, a Pacific Loon reclaims its traditional breeding site, at right. On the previous spread, looking south from the North Slope tundra, the first snows of autumn cap the peaks of the Brooks Range.*

In experiencing the arctic at its peak of life, I came to fully grasp its fragility and the great urgency of preserving it—for its own sake and the well-being of the world's birds that depend on it.

of most species tirelessly perform territorial flight displays, accompanied by complex vocalizations in the early breeding season. They also have diverse repertoires of calls that few species can match.

On the coastal plain around Deadhorse, three species dominate the show—Semipalmated, Stilt, and Pectoral sandpipers. The male Semipalmated Sandpiper's display consists of long hovering flights, often into the wind, accompanied by constant gurgling, trilling, and sputtering sounds at different pitches, often described as "motorboatlike" sounds. Males often meet each other when displaying in flight, resulting in energetic chases back to earth. Displaying higher above the tundra, male Stilt Sandpipers fly broad circles over their territories issuing an assortment of electronic-sounding vocalizations, one reminiscent of the repeated rising notes of a car alarm. Most impressive of all, male Pectoral Sandpipers inflate a large throat sac and perform low buoyant flights over the tundra, issuing a series of deep hooting notes until their sacs deflate.

When I woke that evening the tundra was alive with sounds. The sun, bright and starlike, hung steadily over the northern horizon. As I dressed for the evening, sliding into my wet, muddy hip waders, the earthy aroma of peat filled my nostrils. An arctic fox, surprised at finding me during its nose-to-the-ground search for bird nests, gave several yips and bolted toward a far-off pingo (a mound of earth-covered ice). I set out over the wet spongy tundra with shorebirds in full display overhead. Semipalmated Sandpipers were constant companions, with males in flight and females often popping up on the tundra to give their laughing calls. Male Pectoral Sandpipers floated by, hooting at eye level, and Red and Red-necked phalaropes spun, chattered, and fluttered around little pools. The background chorus was constant with the mutterings of Rock Ptarmigan, bugling Sandhill Cranes, the winnowing of Wilson's Snipe high above, chorusing Pacific and Red-throated loons, the yodeling of Long-tailed Ducks, and the honks of restless geese. Long-tailed, Parasitic, and Pomarine jaegers winged by from time to time, on constant lookout for unattended goose nests, lemmings, or unwary shorebirds.

I walked for a long time, absorbed by the abundant life and beauty around me. On the horizon the oil-drilling rigs and the pipeline reminded me of the fragility of this ecosystem. How ironic that the oil being extracted here would contribute to global warming. The melting of the arctic ice might soon put the very ground I was standing on under water.

The radiation of the midnight sun slowly sunk into the nearby sea ice and a brisk fog rolled in, smothering the tundra. With heavy legs I slogged back toward my camp. The aerial display wound down and the birds settled back into the landscape. The tundra can be so quiet. I was reminded of the first time I had been there in autumn and how quiet it was then. It is an easy place to imagine with no birds at all.

The next morning I began the long journey south. As I drove, I couldn't shake the feeling that I was leaving something I might never see again. In experiencing the arctic at its peak of life, I had come to fully grasp its fragility and the great urgency of preserving it—for its own sake and the well-being of the world's birds that depend on it.

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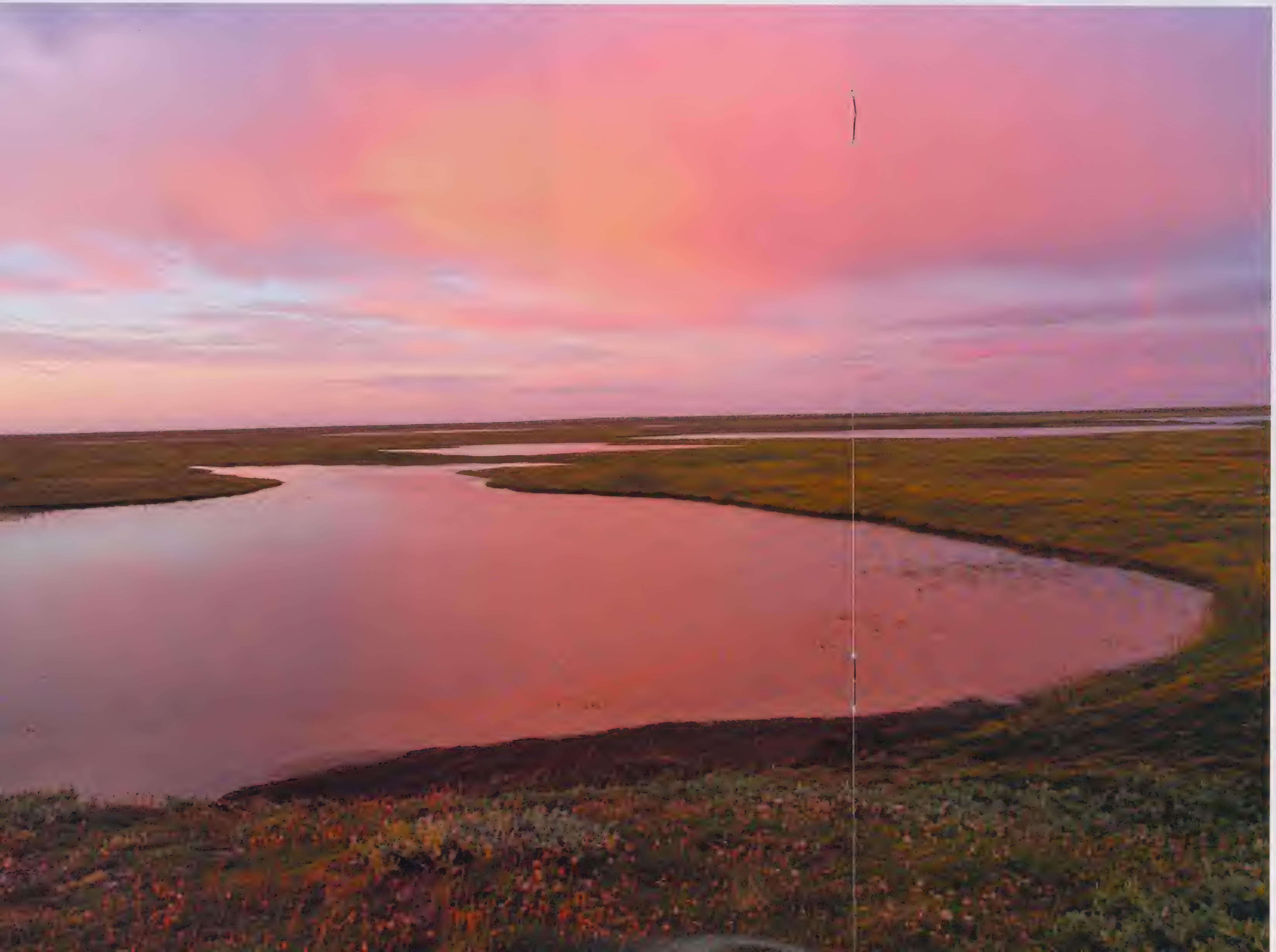
*Gerrit Vyn is an audio producer at the Lab of Ornithology's Macaulay Library. He is also a wildlife photographer and writer. Visit his web site at gerritvynphoto.com.*

# UNSAFE HAVEN?



### *Some of the most vital bird habitat on Alaska's North Slope is threatened—and we're not talking about the Arctic Refuge*

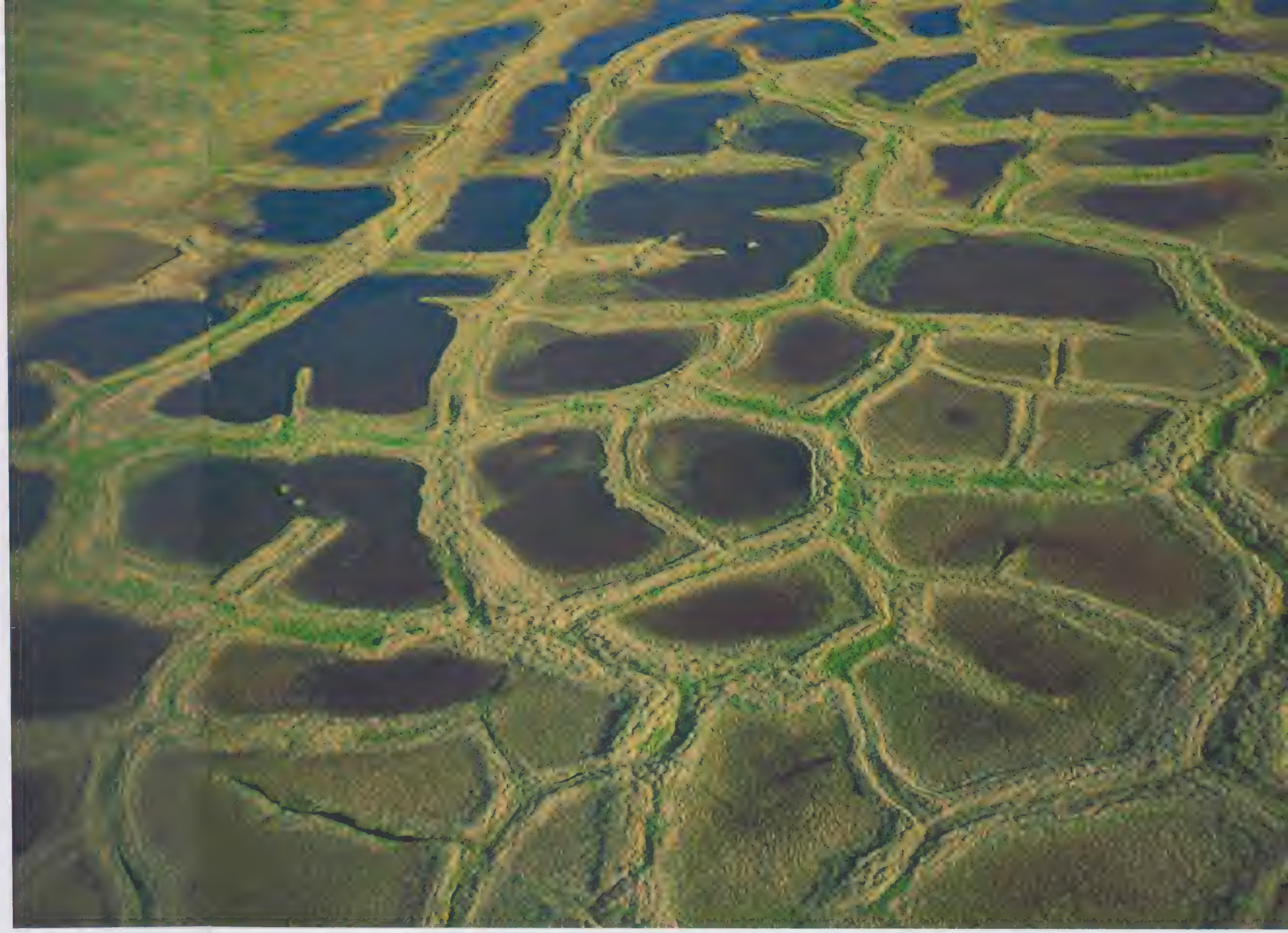
*by Lisa W. Drew*
*Photographs by Gerrit Vyn*

A bird without wing feathers is one nervous animal. You can be a mile away from a group of molting Brant, and your silhouette alone can be enough to send the geese madly waddling and then paddling to deep water. "Anytime they see something on the horizon, they're really spooky," says Alaska state waterfowl biologist Tom Rothe.

In the late 1970s, Rothe was one of a group of U.S. Fish and Wildlife Service (USFWS) biologists who studied the locations and habitats of molting birds in a remote chunk of Alaska's northern coastal plain. There, a broad expanse of an ancient seabed

*Large, shallow lakes dominate the landscape in the Teshekpuk Lake Special Area. These lakes and adjacent areas of tundra habitat provide rich foraging areas for molting geese.*

Across the entire northern coastal plain, freezing and thawing have created room-sized polygons marked by edges that are either uplifted or depressed. In a vertical space of a yard or so, the habitat can change from wetland to desert, and different species of birds take full advantage of the variety.



*At left, more than 80 percent of the Yellow-billed Loons that breed in the United States do so in the National Petroleum Reserve. Tundra polygons are a common feature on the coastal plain.*

juts out into the Beaufort Sea, with enormous Teshekpuk Lake bordering much of its southern edge, so the land to the northeast seems almost like an island. Over time, a phenomenon called thermokarsting—in which the melting of ice-rich soil creates depressions in the ground surface—has carved more than 150 basins containing shallow lakes. Most have partially drained, and the fine marine sediment has fostered wide marshy meadows around the lakes' edges that include two goose favorites: Hoppner's sedge and creeping alkaligrass. Both plants thrive in tidal marshes or areas were saltwater occasionally intrudes.

For waterfowl focused on gobbling up nourishment to regrow feathers and fuel upcoming fall migrations, the setting could not be more ideal. They never have to venture far from water to find more food, and the region is so removed from human activity that the birds rarely make calorie- and time-consuming dashes to the water except when threatened by predators. When they do, as Rothe puts it, "the lakes physically are big enough so the birds can swim off and bob around safely."

Those 1970s studies were prompted by some experimental drilling in the region by the U. S. government, and the biologists concluded that some portions of the Teshekpuk Lake region should be off limits to oil and gas leasing because of the skittishness of molting geese. At the time, the point turned out to be moot: serious oil extraction would not be feasible there anyway until a quarter of a century later, as an expanding network of pipelines got closer and closer.

Perhaps you're guessing that the area in question is part of the Arctic National Wildlife Refuge (ANWR). That would make sense. After all, we've all been told for decades that the most important wildlife habitat on Alaska's northern coastal plain is in the refuge.

Birds, however, tell a different story.

The area around Teshekpuk Lake, which is roughly 175 miles west of the arctic refuge, draws hundreds of thousands of migratory birds—representing dozens of species—every summer. They molt, nest, or simply stop over and feed. Geese alone number more than 90,000. The region, according to biologists, is arguably more important for birds than the arctic refuge, and there's no question that it holds some of the most important habitats for birds in the entire circumpolar arctic.

"I'm a subsistence user on the North Slope, and I've hunted that country," says North Slope Borough biologist Craig George. "I first went into it in 1982 and basically fell in love with it. I don't know what it is. You can't put your finger on it. It's something to do with the remoteness, the wildlife, and the size of the lake. It's not spectacular, but it's like being in the Tetons for the first time. You just realize you're in a special spot."

The Audubon Society likes to point out that the birds in the Teshekpuk Lake area include molting geese from three nations and nesting birds from six continents. Many Inupiat Eskimos in the nearby villages depend on these birds for part of their subsistence diet. So do many Yup'ik Eskimos, who live near the largest Brant nesting colonies on Alaska's western coast.

Up to one quarter of the entire population of Pacific Brant—as well as significant numbers of Canada Geese, Snow Geese, and Greater White-fronted Geese—fly here every summer just to molt. Some travel hundreds of miles from breeding grounds, flying even farther away from their wintering grounds. The habit is entrenched, learned by successive generations. "We assume they've been coming here for a long, long time," says Rothe.

So many birds molt northeast of Teshekpuk Lake that their drifting feathers decorate shorelines, water, and tundra for much of the summer. "They're all over the place," says Rothe. "Even around our cabin, there would be all these little feathers."

The area south of Teshekpuk Lake is also pockmarked with lakes and wetlands, and it too is filled with birds, many of them nesting. They include rare Yellow-billed Loons; Spectacled Eiders, which are federally listed as threatened; King Eiders; Buff-breasted Sandpipers; Long-tailed Ducks; Red-throated Loons; Semipalmated Sandpipers; Red Phalaropes; Lapland Longspurs; and many more.

For the past three summers, biologists from the Wildlife Conservation Society (WCS), funded in part by the federal government, have been studying the reproductive success of 15 species of nesting shorebirds in the area south of Teshekpuk Lake. The point is to compare the birds' reproductive success in this undisturbed area with that of the same species in habitat near oil development elsewhere on the coastal plain.

One conclusion biologist Joe Liebezeit can draw for sure, he says, is that "the area around Teshekpuk is an important nursery for birds from around the world."

All insectivores, these species can live in close proximity in part by specializing in feeding on different kinds of larval underground insects. "The ones with longer bills are generally after longer-bodied underground arthropod larvae; the ones with shorter bills, the shorter ones," says ecologist Dave Norton of the University of Alaska at Fairbanks. "The birds might seem to be competing with each other. They're not. They're finely adapted." When the birds do feed on the same prey, he says, they benefit from the arctic's explosions of insect populations, when so many insects appear at the same time that their predators can't possibly eat them all at once.

The birds also are exquisitely adapted to microhabitats in what might look to us like an endless carpet of sameness. Over time, in places across the entire northern coastal plain, freezing and thawing have created room-sized polygons marked by edges that are either uplifted or depressed. In a vertical space of just a yard or so, the habitat can change from wetland to desert, and different species of birds take full advantage of the variety.

The WCS scientists painstakingly located nests and kept track of the eggs. "It's kind of like an Easter egg hunt," says researcher Joe Liebezeit. If the eggs disappeared, the researchers assumed a predator had dined on them. When chicks hatched, the nest qualified as successful. "What we're finding so far—and I have to say it's preliminary—is that nest survivorship does seem higher here than in areas closer to oil development," says Liebezeit. If the results bear out, it could mean that the predators typically concentrated around oilfields are taking eggs as well as scavenging garbage, or that the business of oil extraction somehow disturbs the nests, or that the habitat south of Teshekpuk Lake is somehow superior. One conclusion Liebezeit can draw for sure, he says, is that "the area around Teshekpuk is an important nursery for birds from around the world."

Alaska's northern coastal plain, which covers the entire top of the state, north of the mountains of the Brooks Range, is divided into three sections: two federal pieces sandwiching a state chunk. The middle part holds Prudhoe Bay, where the first successful oil well in Alaska's far north was drilled about 40 years ago. Ever since then, pipelines and drilling pads have been expanding like spider webs from Prudhoe to the east and west. So far, the growth has almost all been on state land.

The easternmost push stops short of the arctic refuge. On the western side, exploration has just begun to penetrate the other piece of federal land. There, some of the choicest spots for oil development are thought to be in what is known as—take a deep breath—the Teshekpuk Lake Special Area in the Northeast Planning Area of the National Petroleum Reserve-Alaska (NPR-A).

At 23.5 million acres, the petroleum reserve is the largest piece of public land in the United States. In the 85 years since it was established, it has occasionally been poked and prodded for oil and gas—both of which have been found—but until recent years, extracting either in large amounts hasn't been feasible. The cost of transporting the oil has been prohibitive, and the finds were thought to be relatively small.

Also, because oil exploration now takes place only when the tundra is frozen solid enough to withstand the impacts of heavy equipment, explorers are in a race against time when they head out into the dark arctic winter. The farther they go from their usual base of Deadhorse (the community at Prudhoe Bay), the less time they have to work at their destination—and the more money they spend on getting there.

So the notion of drilling for big finds in the NPR–A was more hypothetical than realistic when, in 1976, Congress put the reserve under the direction of the Department of the Interior and told the agency to "take every precaution to avoid unnecessary surface damage and to minimize ecological disturbance throughout the reserve." The following year, the agency named the area around Teshekpuk Lake an ecological "special area," along with two others in the petroleum reserve: the Colville River Special Area and the Utukok River Uplands Special Area.

*Up to a quarter of the Pacific population of Brant, along with Greater White-fronted, Snow, and Cackling geese, go to the Teshekpuk Lake Special Area each year to molt their flight feathers.*

Ever since then, the technology for exploration and drilling has been improving, the cost of oil has been rising. and the infrastructure from Prudhoe Bay has been growing. The federal government has opened some tracts in the reserve for leasing, including in the northeastern part, and a few companies have succeeded in doing some exploration. Last winter, Conoco Phillips even drilled an exploratory well 200 miles to the west of the nearest infrastructure, getting there in part on ice roads and with "rolligons," vehicles outfitted with giant tires. However, this past fall the company ended up dropping 300,000 acres of its leases in the northeast NPR-A, citing high exploration costs. (It still holds other leases in the area.)

The oil industry has been particularly interested in the northeast corner of the reserve, which also happens to be almost exactly where the most important bird habitat is. Some of the geologic forces that created the habitat also helped shape rocks that could hold a great deal of oil. All across the coastal plain are oil-stained rocks and oil seeps, traces of transformed organic matter that carpeted an ocean bottom during the Mesozoic Age. Although plankton made up the bulk by far of that carbon-rich material, dinosaurs and other animals were also part of the mix.

Eventually, layers of sedimentary rock weighed down the carpet, dropping it deep enough to be cooked into oil and gas by the heat below the earth's surface. Then, since they were more buoyant than water, the oil and gas began gradually rising up through any openings they encountered. In places they were stopped by rock formations that sealed them in place.

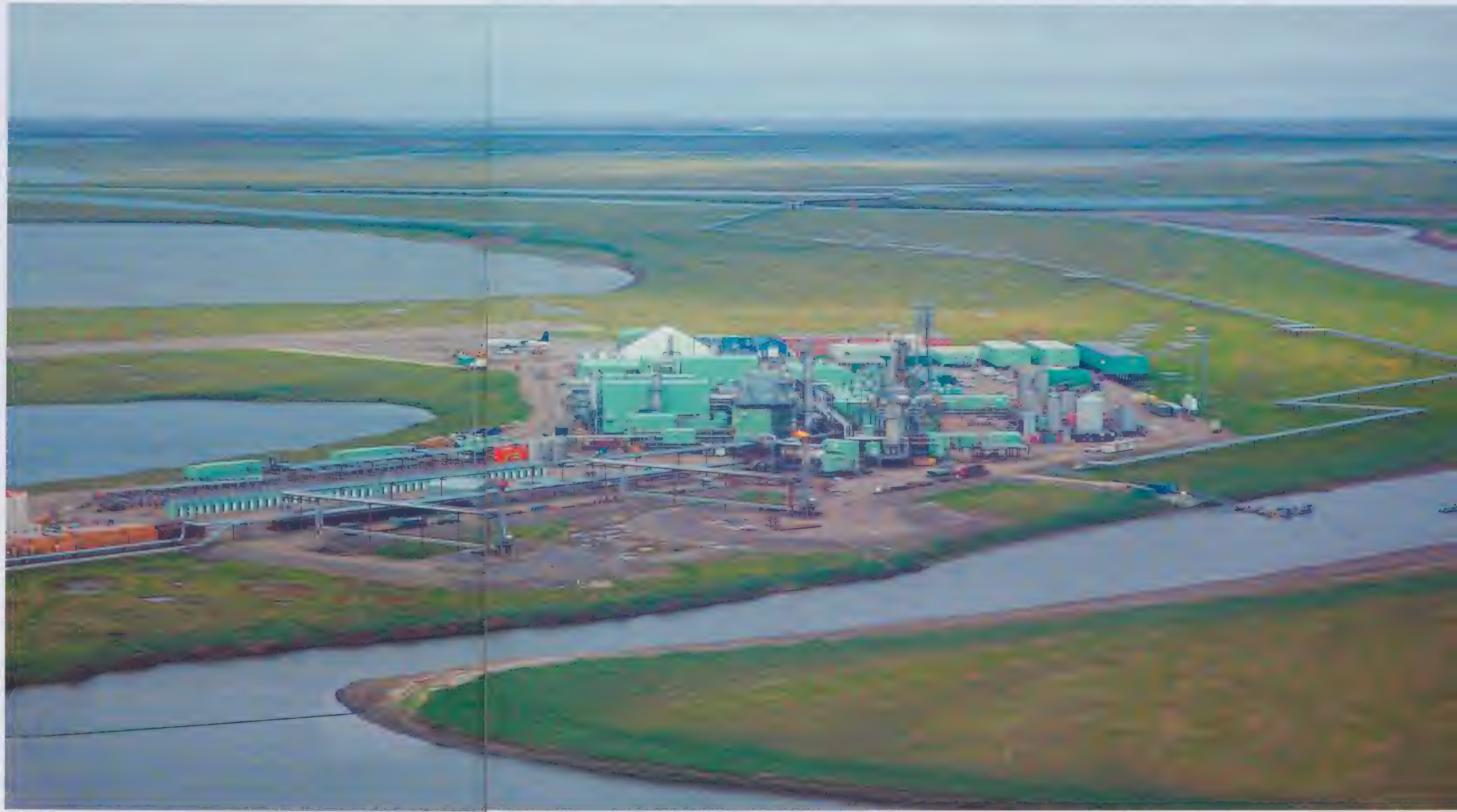
Along much of the coastal plain, when the oil and gas rose out of those hot depths, they migrated toward an uplifted (but still subterranean) area along the coastline. There they encountered an underground ridge called the Barrow Arch, covered with rocks. “The rocks are basically arched over the Barrow Arch,” says geologist Ken Bird of the U.S. Geological Survey. “Some of those layers of rock are impermeable, so they restrict the flow of oil and gas. They basically form a lid.” You couldn't dream up more perfect conditions for an oil field.

In 2005, the Bush administration announced plans to allow oil exploration and development in the entire Teshekpuk Lake Special Area except under the lake itself.

The huge Prudhoe Bay oil discovery in 1968 was right on the Barrow Arch. According to the Bureau of Land Management (BLM), all currently producing oil fields on the North Slope are on or near the Barrow Arch. In fact, virtually all of the oil that has been taken out of the North Slope to date has come from the formation. To the east, the Barrow Arch stops short of the Arctic National Wildlife Refuge. Any oil that might come from the refuge would be from another kind of geologic setting.

To the west, the Barrow Arch runs offshore just north of the Teshekpuk Lake Special Area, and because the ridge gradually rises to the west along its entire length, some speculate that oil has migrated in that direction, says geologist Bird.

In 2005, the Bush administration announced plans to allow oil exploration and development in the entire Teshekpuk Lake Special Area except under the lake itself. If you didn't hear the outcry in response to the proposal, you're in good company. To many observers, it seemed as though the arctic refuge had used up the nation's attention span for important habitat in Alaska's far north. “If you live in the Lower 48 and you compare those two names—well, one of them is a ‘wildlife refuge’ and the other is a ‘petroleum reserve’—which one is going to get your environmental juices flowing?” said then–North Slope Borough Mayor George Ahmaogak in a 2004 address to the Alaska Forum for the Environment. The NPR–A is practically in the backyard of several Inupiat villages and the town of Barrow. “Our neighborhood is all that land and water beyond the village, where the caribou roam and the birds nest and the whales migrate,” said Ahmaogak.



*Often touted as a showcase for low-impact oil development, the Alpine oil field is rapidly sprawling over the Colville River Delta. Two new satellite drill pads and an airstrip have just been added, and there are plans for significant additional development.*

The critics included the Pacific Flyway Council, federal and state biologists, and conservation groups, as well as 200 ornithologists and other wildlife professionals who signed a letter opposing the plan. Bruce Babbitt, who as Secretary of the Interior had opened up some nearby parts of the reserve to exploration but not the special area, told reporters that the science in the BLM's environmental impact statement was “pathetic.” He also noted that much of what he had opened in 1998 remained unexplored. “There's a slice of pie on your plate,” he suggested to the oil industry. “Why don't you eat it before you ask for more?”

For those in favor of the leasing, some of the most important opposition has come from Alaska's Inupiat community, represented by the North Slope Borough. The borough encompasses the state's entire northern coastal plain, from the western coast to the eastern border, as well as a sizeable chunk of the Brooks Range. It has historically supported oil development on the North Slope, including in the Arctic National Wildlife Refuge. (The Inupiat are not to be confused with Gwich'in Indians to the south of the Brooks Range, who oppose development in the refuge.) That support has been key for the federal government in its attempts to allow drilling in the refuge. But when Ahmaogak spoke to conservationists in 2004, he left no doubt about the Inupiat community's response at the time to the new plans for the Teshekpuk Lake region. “The risks and potential impacts of industrial activity in NPR–A are greater than they are in ANWR,” he said. “People don't know that. All they know down south is that ANWR is a giant political football.”

Yup'ik Eskimos also have opposed the development, because their subsistence diet, which includes birds and eggs, would be at risk. Their villages are along the western coast of the state south of the Brooks Range and north of the Aleutian Islands, including the Yukon-Kuskokwim Delta—the state's big belly that bulges into the Bering Sea. The delta is the primary nesting area for Pacific Brant, hosting 80 percent of the breeding population.

“There definitely will be impacts,” says Myron P. Naneng, Sr., president of the Association of Village Council Presidents, which represents Alaska Natives in the west of the state. “The Brant are very susceptible to being impacted by exploration or any new development that comes around. We know that stress is going to impact their ability to go through the summer without being disturbed. We've seen it even in the Y-K Delta, where if they start being disturbed they start to move away or they don't reproduce." In short, he says, development around Teshekpuk Lake will have "a really big impact on our people here."

One concern, says Craig George, is that at some point incremental change could add up and tip the ecosystem into a major shift. "There are thresholds, and I don't think anyone really knows where they are," he says. "I am not opposed to careful development. I guess there are different opinions about where the fulcrum is on the teeter-totter. So you default to the precautionary principle of taking large areas out of production until you know what you're doing. It's complicated, because I also see the benefits development has had for North Slope people." At the same time, he says, he is concerned about changing the character of the land. "We were up there doing a fisheries project one August," he says. "We were the only people camped on the entire lake. There was wildlife everywhere. Just being in a place like that is a powerful experience."

In September 2006, just as the BLM was preparing to sell leases northeast of Teshekpuk Lake, a federal court order sent the agency back to further analyze potential impacts. In August of 2007, the BLM released a revision of its environmental impact statement for developing the NPR–A's northeastern corner. In November, as this article was going to press, the agency was still taking public comments on the statement. Although the latest version names the North Slope Borough as a cooperating agency in the draft, Mayor Edward S. Itta made it clear in a 30-page letter to the BLM that the borough's position has not changed. The BLM included more analysis, he writes, but the borough still concludes—in some cases because of that very analysis—that areas closed to oil exploration and drilling in 1998 should remain closed. "In defense of our traditional subsistence whaling rights, we have been held to the most rigorous standards of scientific study design, reporting, and peer review," Itta writes. "We believe that no less should be required of agencies and industry operators active in our waters and on our land."

Presumably the BLM has also gotten an earful from other critics. Imagine, for example, conservationists' responses to the BLM's conclusion that "protected areas or reserves are of limited long-term value if the conditions within them are expected to change." Climate change, the statement notes in detail, is expected to melt permafrost, erode arctic coastlines, raise temperatures, and alter the region's delicate hydrology.

"We look at it absolutely the opposite," says Audubon Alaska executive director Stan Senner. "We have a mirror image based on the same information. They want to lay down an oilfield infrastructure with various protective measures in place—and do that in the context of a changing environment. They're proposing buffers around lakes, for example, and those buffers may not be useful in years to come. Our view is, put aside the whole area, and allow wildlife to adapt."

The habitat changes already are underway. Sea ice is dwindling—it reached a record low this past summer—and it no longer protects the coast from storms as much as it once did. That probably explains the recent finding, say U.S. Geological Survey researchers, that the rate of coastal erosion north of Teshekpuk Lake doubled from 1985 to 2005 compared with the previous 30 years. Not only has the coast been eaten away, lakes have drained and seawater has intruded.

*One of several species of sea ducks undergoing population declines, the Long-tailed Duck breeds on small tundra ponds across the coastal plain of Alaska.*

At the same time, say federal biologists with the USGS and the USFWS, Brant northeast of Teshekpuk Lake have been moving from inland lakes to salt marshes, and populations of Greater White-fronted Geese have exploded. Either the Greater White-fronted Geese are crowding the Brant, the researchers hypothesize, or altered habitat has changed the birds' foraging habits. Either way, they write in the journal *Polar Biology*, "the observed shifts in species distributions are an important consideration for future resource planning."

The most pervasive change of all, of course, is the warming itself, which ironically could threaten future far-flung oil exploration. The tundra must be frozen hard to support even rolligons and ice roads, and every time greenhouse gases are released into the atmosphere, they not only help change habitat, they may shrink the arctic's winter oil-exploration season a little more. ◆

*Lisa W. Drew is a former Alaskan who often writes about environment and wildlife issues. She teaches journalism at Ithaca College.*

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For more on Teshekpuk Lake, visit www.livingbird.org.

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# SCOPE QUEST 2008

*Scanning the horizon for the world's best birding optics*

*by Ken Rosenberg*

It has been five years since we last reviewed spotting scopes and, as with binoculars, a proliferation of fine optics now competes for birders' attention—as well as their credit cards. Even with 36 scopes in our arsenal, a quick check of some birding web sites told us that even more choices are available to shoppers. But the models sent to us by scope manufacturers represent a fair cross-section of the market, especially in the high-end categories. As box after box of coated glass arrived in *Living Bird* editor Tim Gallagher's office, it became clear that a side-by-side comparison of all the scope models would be challenging. (Just finding enough tripods for our review was a trick in itself.) But on several fine October afternoons, 30 local birders, ranging from seasoned World Series of Birding veterans to curious beginners, stopped by the back patio of the Cornell Lab of Ornithology to check out our lineup and fill out a data sheet for the models they examined. Conditions ranged from bright sun to dreary drizzle (not hard to come by in Ithaca), enough variation to put even the toughest scopes to the test.

I ended my last scope review with two challenges to optics manufacturers. The first—creating the ultimate birding scope that could provide a flawless image at powers exceeding 75x in a rugged, portable body—has not been met. Although the number of excellent choices is somewhat greater, the finest available zoom scopes have changed little in overall design or performance in the last five years. My second challenge—to deliver decent high-power optics to birders on a budget—has been partially met by several companies. But although we were pleased to see a few inexpensive scopes offering passable images in birder-friendly, waterproof packages, we've seen nothing in the scope world like the wide selection of good, low-cost binoculars currently available.

## Choosing a scope

The first decision a would-be scope buyer needs to make is often budgetary. As with any fine toy—I mean tool—the cost of a spotting scope is usually the best indicator of its overall quality, so my first recommendation is to spend as much as you can afford, matching up the highest quality scores in the accompanying table with the price you are willing to pay. Keep in mind that the more expensive models are nearly always rugged, fully weatherproof, and come with a lifetime warranty that adds value to your investment. Many of the less expensive scopes offer a good image at lower powers (15x–20x) but often lose quality rapidly as you zoom to higher powers. In contrast, most of the top-of-the-line models provide a sharp, bright image at 60x or beyond. Some birders always prefer a fixed-power (usually 30x wide-angle) eyepiece, while others (including yours truly) find a high-power zoom eyepiece indispensable for tough distance birding situations such as hawk watching, sea watching, or sorting through shorebirds on a mudflat. For this review, we compared scopes fitted with a 20x–60x zoom eyepiece, or the closest equivalent. If you're on a tight budget, however, and high power is not essential, choosing an inexpensive scope with a fixed, low-power eyepiece might be the best option.

TIM GALLAGHER

*Thirty local birders, ranging in skill level from beginner to expert, took part in the Lab's scope review on the back patio of the Lab.*

Other than image quality, selecting among the many variable scope features usually comes down to personal preference or experience. Because of the high degree of subjectivity exhibited by our reviewers, I cannot emphasize enough the importance of testing a scope in person to make sure it works well for you before opening your wallet. For starters, many scopes come in a straight-through or angled design with virtually identical optics. Whereas the straight models may make it easier and faster to get on distant birds, especially in flight, birders who share their scope with other birders of different heights find the angled design a real asset. When I'm birding with my family, for example, or leading a birding tour, I can simply set the height of the tripod to suit the shortest member of the group (often me!). In addition, many angled scope bodies can be rotated to allow easy viewing below eye-level (such as from a tower or high bluff) without needing to lower the tripod. Many scopes also now come in larger (usually at least 80mm objective lens) or smaller (usually 60mm or 65mm) models, which are otherwise very similar in optical quality. Here the tradeoff is weight and portability (my 65mm Swarovski fits nicely into my small backpack) versus the noticeably brighter image (but not necessarily wider field of view) offered by the larger models, especially at high power in dim light.

If (like me) you wear eyeglasses while birding, the most important feature of a scope may be eye relief, or how close you can get your eye to the lens. Fortunately, most newer scope models provide adjustable turning or locking eyecups and adequate eye relief even when zoomed to high power. Pay very close attention to the "eyeglass-friendliness" scores in the table, however, because some scope models give an unacceptably narrow "tunnel" view for eyeglass wearers, especially when zooming. The severity of this tunneling effect varied greatly among our reviewers, depending on how close to their eyes they normally wear their eyeglasses. If you wear eyeglasses, it is especially important that you test a scope in person before buying it.

In the accompanying table, I provide an analysis of each scope model in terms of image quality and usability, based on the scores of at least 10 reviewers. I asked each reviewer to judge the overall image quality (brightness, sharpness, edge-to-edge focus, color) on a scale of 1–5 (with 5 being the best) at low power (usually 20x) and zoomed to highest power (usually 60x, but sometimes 45x). They then judged the overall "feel" of the scope, including ease of focusing and zooming, and reviewers with glasses judged the eyeglass friendliness of each model. Finally, I combined the average score in each category, and ranked the scope models according to this overall quality score in three somewhat arbitrary price ranges: top-of-the-line (more than$1,500), mid-priced ($1,000 to $1,500), and budget (under $1,000). Note that the prices listed are usually the manufacturer's suggested retail price, but many models may be found at discounted prices at retail outlets or on the Internet.

## Best of the best

Fifteen models competed in the most expensive category, including twelve conventional zoom scopes and three astronomy "cross-overs" that can be used for both stargazing and birding. Among the conventional scopes, the surprising (to us) and virtually unanimous top-of-the-line ranking went to the Kowa TSN-883 Prominar. More than a decade ago, Kowa revolutionized scope birding with the fluorite TSN-4 series, and they seem to have done it again with both the 883 and the slightly smaller 774, which is non-fluorite but boasts the newest "XD-coated" glass. In side-by-side comparisons with Swarovski, Leica, Zeiss, and Nikon, both Kowa scopes provided a slightly, but noticeably, brighter and crisper image at 60x than any other scope. The three-dimensional detail visible on bird feathers and tree bark with these scopes, even in dim light, is simply phenomenal.

One evening, as we were packing up from an afternoon of scope testing, a call came in about a rare Hudsonian Godwit at a local wetland. I grabbed the Kowa 883 and headed over in the fading light. As I arrived, not only had the godwit just flown, but

| Model | Category rank | Lens diameter | Price | Weight (ounces) | Field of view | Close Focus | Waterproof/Fogproof | Image (20x) | Image (60x) | Feel | Eye | Score |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TOP-OF-THE LINE (more than $1,500)** | | | | | | | | | | | | |
| Kowa TSN-883 Prominar | 1 | 88mm | $2,830 | 64.0 | 115-55 | 16.4 | Yes | 4.9 | 4.8 | 4.6 | 4.9 | 19.2 |
| Kowa TSN-774 Prominar | 2 | 77mm | 2,435 | 57.8 | 115-55 | 16.4 | Yes | 4.9 | 4.7 | 4.6 | 4.9 | 19.1 |
| Swarovski ATS 80 HD | 3 | 80mm | 2,875 | 59.0 | 108-60 | 16.1 | Yes | 4.9 | 4.6 | 4.7 | 4.9 | 19.0 |
| Swarovski ATS 65 HD | 4 | 65mm | 2,542 | 49.0 | 108-60 | 10.0 | Yes | 4.7 | 4.3 | 4.5 | 4.7 | 18.2 |
| Tele Vue-85 Evergreen (25-75X)* | 5 | 85mm | 2,435 | 124.5 | 84-38 | 29.1 | No | 5.0 | 5.0 | 2.9 | 4.9 | 17.8 |
| Leica APO Televid 77 | 6 | 77mm | 2,000 | 68.8 | 100-63 | 12.8 | Yes | 4.5 | 3.9 | 4.2 | 4.3 | 17.0 |
| Zeiss Diascope 85 T FC | 7 | 85mm | 2,215 | 61.1 | 129-60 | 16.0 | Yes | 4.0 | 4.3 | 4.0 | 4.5 | 16.8 |
| Optolyth APO TBS 100 (30-60) | 8 | 100mm | 2,389 | 89.6 | 84-39 | 23.0 | Yes | 4.1 | 4.0 | 3.7 | 4.5 | 16.3 |
| Tele Vue-60 Scope Package | 9 | 60mm | 1,650 | 59.4 | 139-63 | 10.5 | No | 4.8 | 4.7 | 2.7 | 4.1 | 16.2 |
| Zeiss Diascope 65 T FL (15-45x) | 10 | 65mm | 1,875 | 49.1 | 168-78 | 13.0 | Yes | 3.4 | 4.0 | 3.9 | 4.2 | 15.4 |
| Questar Birder Scope (40/60X) | 11 | 90mm | 4,500 | 66.9 | 58 (40x) | 20.0 | No | 4.5 | 4.3 | 2.5 | 3.7 | 15.0 |
| Optolyth TBG 80 | 12 | 80mm | 1,989 | 58.4 | 80-39 | 10.0 | Yes | 3.8 | 3.5 | 3.1 | 4.3 | 14.7 |
| Nikon Fieldscope ED 82 (25-75x) | 13 | 82mm | 1,970 | 63.8 | 84 (25x) | 16.4 | Yes | 4.6 | 3.9 | 3.2 | 2.5 | 14.1 |
| Nikon Fieldscope ED III-A (16-60X) | 14 | 60mm | 1,811 | 47.5 | 105 (16x) | 16.4 | Yes | 4.2 | 3.6 | 3.2 | 2.4 | 13.3 |
| Optolyth TBS 65 | 15 | 65mm | 1,589 | 46.7 | 81-42 | 9.0 | Yes | 3.2 | 2.8 | 2.2 | 3.9 | 12.0 |
| **MIDPRICED ($1,000 to $1,500)** | | | | | | | | | | | | |
| Brunton Eterna 20-60x 80ED | 1 | 80mm | 1,160 | 68.0 | 98 (20x) | 20.0 | Yes | 4.0 | 3.7 | 3.5 | 4.5 | 15.7 |
| Opticron ES 80 GA ED (26-60x) | 2 | 80mm | 1,225 | 64.6 | 106-59 | 20.0 | Yes | 4.1 | 3.4 | 3.6 | 4.1 | 15.3 |
| Bushnell Elite 20-60X80 | 2 | 80mm | 1,174 | 60.3 | 98-50 | 15.0 | Yes | 3.9 | 3.2 | 3.8 | 4.3 | 15.3 |
| Brandon Master Birder (15/30X) | 3 | 80mm | 1,095 | 70.1 | 226 (15x) | 8.0 | No | 4.1 | 2.8 | 2.5 | 5.0 | 14.4 |
| Minox MD 62 W ED (21-42) | 4 | 62mm | 1,119 | 43.8 | 84-66 | 16.5 | Yes | 3.4 | 3.0 | 3.4 | 4.5 | 14.3 |
| Nikon Fieldscope ED 60 (16-60x) | 5 | 60mm | 1,200 | 43.8 | 105 (16x) | 16.4 | Yes | 4.3 | 3.6 | 3.4 | 2.4 | 13.7 |
| Nikon Fieldscope ED 50 (13-30x) | 6 | 50mm | 1,030 | 19.4 | 158 (13x) | 9.8 | Yes | 3.8 | 3.2 | 3.3 | 2.5 | 12.9 |
| Celestron Ultima 100 ED (22-66x) | 7 | 100mm | 1,091 | 75.8 | 95-53 | 33.0 | Yes | 3.4 | 2.3 | 3.2 | 3.4 | 12.3 |
| Pentax PF-65 ED AII | 8 | 65mm | 1,115 | 45.6 | 117-51 | 16.4 | Yes | 3.7 | 2.8 | 3.3 | 2.4 | 12.1 |
| Leupold 12-40x60 (12-40x) | 9 | 60mm | 1,000 | 35.0 | 168-52 | 36.0 | Yes | 3.0 | 2.5 | 2.6 | 2.2 | 10.3 |
| **BUDGET (below $1,000)** | | | | | | | | | | | | |
| Vixen Geoma Pro 67-A (16-48x) | 1 | 67mm | 634 | 42.4 | 131-63 | 16.5 | Yes | 3.9 | 3.3 | 3.8 | 3.6 | 14.5 |
| Vixen Geoma Pro ED 67-A (16-48x) | 2 | 67mm | 834 | 44.3 | 131-63 | 16.5 | Yes | 3.8 | 3.2 | 3.8 | 3.6 | 14.3 |
| Vixen Geoma Pro ED 82-A | 3 | 82mm | 960 | 54.1 | 114-55 | 39.3 | Yes | 3.8 | 3.0 | 3.5 | 3.6 | 13.9 |
| Vixen Geoma Pro 82-A | 4 | 82mm | 734 | 52.3 | 114-55 | 39.3 | Yes | 3.7 | 2.9 | 3.5 | 3.6 | 13.7 |
| Vortex Stokes Sandpiper (15-45x) | 4 | 65mm | 359 | 38.2 | 144-67 | 25.0 | Yes | 3.5 | 3.0 | 3.4 | 3.8 | 13.7 |
| Vortex Skyline 80 ED | 5 | 80mm | 780 | 67.2 | 113-55 | 26.0 | Yes | 3.1 | 2.9 | 3.3 | 3.4 | 12.7 |
| Vortex Skyline 80 | 6 | 80mm | 499 | 59.4 | 113-55 | 26.0 | Yes | 2.8 | 2.9 | 3.3 | 3.5 | 12.4 |
| Nikon Prostaff Waterproof | 7 | 82mm | 850 | 49.0 | 99-50 | 20.0 | Yes | 3.7 | 3.0 | 2.8 | 2.2 | 11.7 |
| Brunton 9050ED S Eterna (18-38x) | 8 | 50mm | 599 | 37.1 | 141 (18x) | 20.0 | Yes | 2.6 | 2.4 | 3.0 | 2.7 | 10.8 |
| Leupold 20-60x80 Sequoia | 9 | 80mm | 575 | 59.4 | 100-33 | 30.0 | Yes | 2.9 | 2.1 | 2.7 | 3.0 | 10.7 |
| Carson SS-550 Back Country (15-40x) | 10 | 50mm | 220 | 21.1 | 141-72 | 16.0 | No | 1.8 | 1.1 | 2.5 | 1.0 | 6.4 |

**Category Rank:**
Based on score within each price range

**Price:**
Manufacturer's suggested retail price; includes zoom eyepiece

**Weight:**
Includes zoom eyepiece

**Field of View:**
Feet at 1,000 yards at 20x-60x unless otherwise noted

**Close focus:**
Minimum focus distance (feet)

**Image quality, overall feel, eyeglass friendliness:**
Average of 10 or more reviewers' ratings, from 1 (poor) to 5 (excellent); image quality (sharpness, brightness, color, etc.) at 20x and 60x (or closest equivalent); feel includes ease of focus and handling; eyeglass friendliness includes degree of tunnel-vision (poor eye-relief) and usability of eyecups

**Score:**
Sum of average scores for image quality, feel, and eyeglass friendliness; possible range from 4.0 to 20.0

*We thank Wild Birds Unlimited at Sapsucker Woods for their help with this review and for the loan of several scopes and tripods. Visit their web site at www.sapsuckerwoods.com. We are also grateful to the 30 local birders who took part in this review.*

*Top among the conventional birding scopes, the Kowa TSN-883 provided a brighter, sharper image than the competition.*

a steady drizzle had started. Still, several fellow birders were lined up scoping the ducks and geese with their coveted Swarovski, Zeiss, and Leica scopes—just the "real-birding" test I needed for the new Kowa. Sure enough, the Kowa 883 pulled out considerably more detail on the mergansers and teal at 60x, as if computer software in the scope had somehow brightened and sharpened the image, compared with the other scopes. On another day, three "grayish" shorebirds on a jetty several hundred yards across Cayuga Lake were barely resolvable through the heat waves with the other top scopes, but through the Kowa, two Dunlins and a Ruddy Turnstone were clearly identifiable. Besides the superb image, the Kowa scopes offer other nice features for birding, including eyecups that turn and lock in several intermediate positions and dual top focus knobs that are smooth, precise, and fast, moving from close vegetation to the distant horizon in less than half a turn.

Based on the opinions of most reviewers, close behind the Kowas were the Swarovski 80mm and 65mm HD scopes. The bright, edge-to-edge sharp image of both models is only slightly less superb than the Kowa's, and many reviewers preferred the lightweight compact design of the Swarovskis, as well as the single, full-barrel focus ring. Surprisingly, even the 65mm Swarovski offers a wider field of view than either Kowa scope, but the 60x image of the small Swarovski is noticeably darker in dim light, and some eyeglass wearers experienced slight "tunneling" compared with the larger scopes. In addition, Swarovski still corners the market on what I consider the most innovative scope feature—a built-in tripod mount that's molded to the body and fits snugly in most Bogen tripod heads without the need for an adaptor plate. This feature permanently eliminates any annoying play or wiggle of the scope on the tripod, a tremendous boon while scanning or digiscoping. All in all, I'm not sure I'm ready to give up my 65mm Swarovski, although I'd love to see one of the smaller 66mm Kowas, which were not sent to us to review.

Continuing to split hairs among the excellent top contenders, the Leica, both Zeiss Diascope models, and the Optolyth TBS 100 were in a tier slightly below Swarovski or Kowa. Leica was hesitant to send us their recently discontinued 77mm APO scope, because they are introducing a completely redesigned line of scopes next spring that promises to be very exciting, but they were not yet available for testing. Fitted with a 30x wide-angle eyepiece, the Leica has long been a favorite among professional tour-guides, but zoomed to 60x its image is distinctly duller and darker than the other top scopes. The Zeiss Diascopes provide a very wide field of view at low magnification, but the image is somewhat out of focus around the edges at the lowest power. This could cause eye fatigue while scanning at low power. In other ways, however, the Zeiss scopes were comparable with the other top models. The 60x image on the 85mm Zeiss Diascope was similar to that of the Swarovskis. But the smaller Zeiss scope only zooms to 45x, and the dual focus knobs were somewhat stiff. The behemoth Optolyth 100 only comes into its own in extreme low-light conditions, so it may not be worth its weight—or price—for most birding situations.

Rounding out the most expensive category were the Nikon Fieldscopes and the smaller Optolyth models. Nikon says that their scopes were designed "with the birder in mind," and optically these scopes are sharp and bright, but their design is not as user friendly as some of the other scopes—especially for birders who wear eyeglasses. The focus ring is stiff, and the narrow ring on the zoom eyepiece is hard to find and turn and even harder to read. Worse still for eyeglass wearers is the pinhole of an objective opening that creates tunnel views, even at lower magnification. But because the Nikon Fieldscopes are easy to find at discounted prices, they may offer the non-bespectacled birder an excellent image at half the cost of the other top scopes. By comparison, the smaller Optolyth models were less impressive optically but were easier on eyeglass wearers.

## *Astronomy crossovers for birding*

For many years, a birder or professional tour guide who demanded the absolute finest scope image available simply had to own a Questar. But the Questar Birder Scope has changed little since the 1960s, and although its image is still excellent, it is easily equaled or surpassed by the top zoom spotting scopes for a fraction of the cost. The same is not true of the TeleVue 85mm Evergreen scope, which continues to offer the most breathtaking optical image available anywhere on this planet. Fitted with an eyeglass-friendly 8–24mm Radian eyepiece, this scope received a perfect score for image quality throughout its 25x–75x range. As fine as the 60x image of the Kowa 883 appeared next to the other conventional scopes, when reviewers put the Kowa next to the TeleVue, their jaws dropped in amazement. As dusk fell and Canada Geese settled almost invisibly onto Sapsucker Woods pond, the TeleVue resolved the same crisp feather detail at 75x as the Kowa could at 60x, and when we backed the TeleVue down to 60x, it was as if a light had been turned on inside the scope.

TIM GALLAGHER

After I raved about the TeleVue in my last review, the company now offers a number of additional features to appeal to birders. First, the 85mm scope came with a 45-degree-angle prism, which made for more comfortable viewing than the typical 90-degree angle on astronomy scopes. Also, TeleVue has introduced a new 60mm scope for birders, which includes the 45-degree prism, and when fitted with the same 8–24mm zoom provides powers from 15–45x. This scope is comparable in size, weight, and image quality to the best Swarovski or Kowa spotting scopes and may cost considerably less, but many birders balk at the non-waterproof housing, awkward feel, and reversed image typical of all the astronomy crossovers. The final scope in this category, Brandon's Master Birder, will probably have limited appeal to field birders in spite of a very sharp, bright, comfortable image at 15x. But it would be a nice scope for watching birds at a nature center or backyard feeder.

## *Mid-priced and budget scopes*

We reviewed eight conventional scopes in the $1,000–$1,500 price range, and several offer very decent optics at a reasonable price. The top three models in this category, the Brunton Eterna 80, Opticron ES 80 GA ED, and Bushnell Elite 20–60x80, are large scopes with nearly identical, very good images at low magnification. Zoomed to 60x, however, the Brunton maintained a slightly sharper image than the others, whereas the Elite's lightweight, user-friendly design (and deeply discounted prices at many outlets) may make it the preferred mid-priced scope. The other full-sized model, Celestron's Ultima 100 ED was heavy and not as bright and sharp in comparison. The three mid-priced, 60–65mm scopes we tested were decidedly mediocre and probably not worth a second look, considering the better choices in the lower price range. In a class by itself was the Nikon ED 50 Fieldscope, which at 1.2 pounds offers the only truly compact birding scope with a surprisingly bright, sharp image up to 30x. But don't consider this scope if you wear eyeglasses, because it suffers from the same kind of tunneling as the larger Nikon zooms.

I was pleased to see at least a few good choices among the 11 scopes in the under-$1,000 category. Leading this group was the Vixen Geoma Pro 67, which surprisingly, exhibited the best optical quality of the four Vixen models we tested. Neither the larger 82mm, nor the ED-glass models could match the image of their less expensive sibling, leading us to wonder if the scope was mislabeled—or if quality control is an issue. Nevertheless, the sleek, lightweight Pro 67 produced a superior image at low and high (48x) magnifcation than the equivalent Minox, Pentax, or Leupold models, which cost significantly more. An even nicer surprise was the Vortex Stokes Sandpiper, which at $359 or less could be the best buy of any model we tested. This small, lightweight scope is fully waterproof, works well with eyeglasses, and provides an image nearly as nice up to 45x as the more expensive Vixens. The two bulky Vortex Skyline 80 models were definitely outclassed by all of the Vixens and the Sandpiper, with the ED glass version barely improving image quality. Nikon's Prostaff 82mm scope is similar to the larger Vixens in terms of optical quality but exhibits the same usability and eye-relief problems as the other Nikon zoom scopes. Brunton's 50mm Eterna and Leupold's 80mm Sequoia scopes scored lower than the Vortex Skylines, but at the bottom was the Carson SS-550, which would not come into sharp focus even at the lowest magnification. I doubt if you could spot a bull elk in a meadow with that scope.

## *Final tips and top picks*

With so many fine scopes on the market, choosing the right one should be easy and fun. Your selection should be based on budget—how much you can really afford—and the kind of birding you do most, or hope to do more of with a new scope. If you're on a tight budget and want decent optics in the least expensive package, I'd try the Vortex Stokes Sandpiper. For a bump up in image quality in a still-affordable, user-friendly scope, I'd check out the Vixen Geoma Pro 67 or look for a discounted Bushnell Elite. I'd also check out a few other inexpensive scopes that we didn't get to test this time, such as the Bushnell Legend or Spacemaster or the smaller, non-fluorite Kowa models; several Alpen, Barska, and Zhumell scopes look interesting as well. If you're willing to spend $1,000 but not much more, the Brunton Eterna 80 might be a good choice, or if you're really looking for a very light, compact birding scope, and you don't wear eyeglasses, check out Nikon's ED 50 Fieldscope.

For birders willing to take the plunge for the very best optics at whatever cost, the top choices, in my view, are either the Kowa 883/884 or 773/774 or the Swarovski HD 80mm or 65mm scopes. Any of these top scopes will give you years of pure birding pleasure. Although the larger Kowa offers the brightest, sharpest image available from a conventional zoom scope under the toughest birding conditions, the small Swarovski still delivers the best image per ounce of any scope. Since I started using a Swarovski HD 65 five years ago, I find that I readily take it to places—such as the canopy of a Peruvian rainforest—where I would never consider lugging a larger scope. Again, I urge you to try these scopes, in the field if possible, to see which model works best for you. I would check out the smaller Kowa XD models as well, and if you're a Leica fan it might just be worth waiting till spring to see if their new line can recapture top billing.

Finally, if you are a connoisseur of "pure image" and you have a sheltered location to set up the TeleVue 85mm Evergreen scope (a covered deck overlooking the ocean comes to mind), you will not be disappointed. And although the more portable 60mm scope package is a step in the right direction, my challenge is still out there to put the unparalleled TeleVue optics into a waterproof, truly birder-friendly spotting scope that can set a new standard for extreme birding. ◆

*Ken Rosenberg is director of Conservation Science at the Lab.*

**ON THE WEB**

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# The Galapagos of the North

*Text and photograph by Bobby Harrison*

## *Photographing seabirds in the spectacular Pribilofs*

Far out in the Bering Sea off Alaska lie four rocky islands that most people don't even know exist: the tiny Pribilofs—Saint Paul, Saint George, Otter, and Walrus islands. Nicknamed the "Galapagos of the North," these remote Alaskan isles were visited by legendary birders Roger Tory Peterson and James Fisher in the early 1950s during the epic journey they wrote about in their book, *Wild America.* Both were stunned by the sheer number of birds occupying every nook and ledge along miles of the islands' rocky walls.

As a bird photographer, that is what first brought me to the Pribilofs and has kept me coming back time after time. Each spring millions of seabirds and hundreds of thousands of fur seals come to the Pribilofs to breed. The seabirds line the rocky coastal cliffs, seeking any available space to lay their single egg. Horned and Tufted puffins burrow into the thin soil and seek out crevices in towering cliff walls. Thick-billed and Common murres, Northern Fulmars, Red-faced and Pelagic cormorants, and Black-legged and Red-legged kittiwakes nest on narrow ledges on the cliffs, while three species of auklets nest along the boulder-strewn coastlines of the islands.

The Pribilofs are definitely a bird photographer's paradise, but be forewarned: weather conditions can be challenging. These remote islands seem perpetually covered with a thick layer of fog and clouds, and they are often battered by high winds and sideways blown rain, at times torrential. Good rain gear is an essential part of the Pribilof wardrobe—for you as well as your valuable camera equipment. And because the lighting conditions can be dim, you often have to use slow shutter speeds, making a steady tripod a must.

When planning a trip to the Pribilofs make sure to allow ample time on the islands to increase your chances of having at least a couple of good photography days. I have made five trips to Saint Paul (the island with the best tourist amenities in the Pribilofs) and have spent up to 16 days at a time there. On each of my trips, I have experienced thick fog, horizontal rain, high winds, heavy cloud cover, and even a sunny cloudless sky—sometimes all in the same day.

Winds coming across the islands can be ferocious at times, and you will be working close to the edge of cliffs, often standing on narrow ledges to get the best shots. *This is dangerous*—so be aware which way the wind is blowing at all times. A change in wind direction combined with a strong gust could easily blow you off the cliff's edge to certain death. You should also be aware that the ground near the edge of the cliffs may not be as solid as it seems. Constant rain and wind continually erode and undercut the cliffs. What appears solid may well be undercut and not able to support your weight. Always check the ground before walking to the edge of a cliff. The most important rule to keep in mind when photographing cliff-nesting birds on the Pribilofs is *don't fall!*

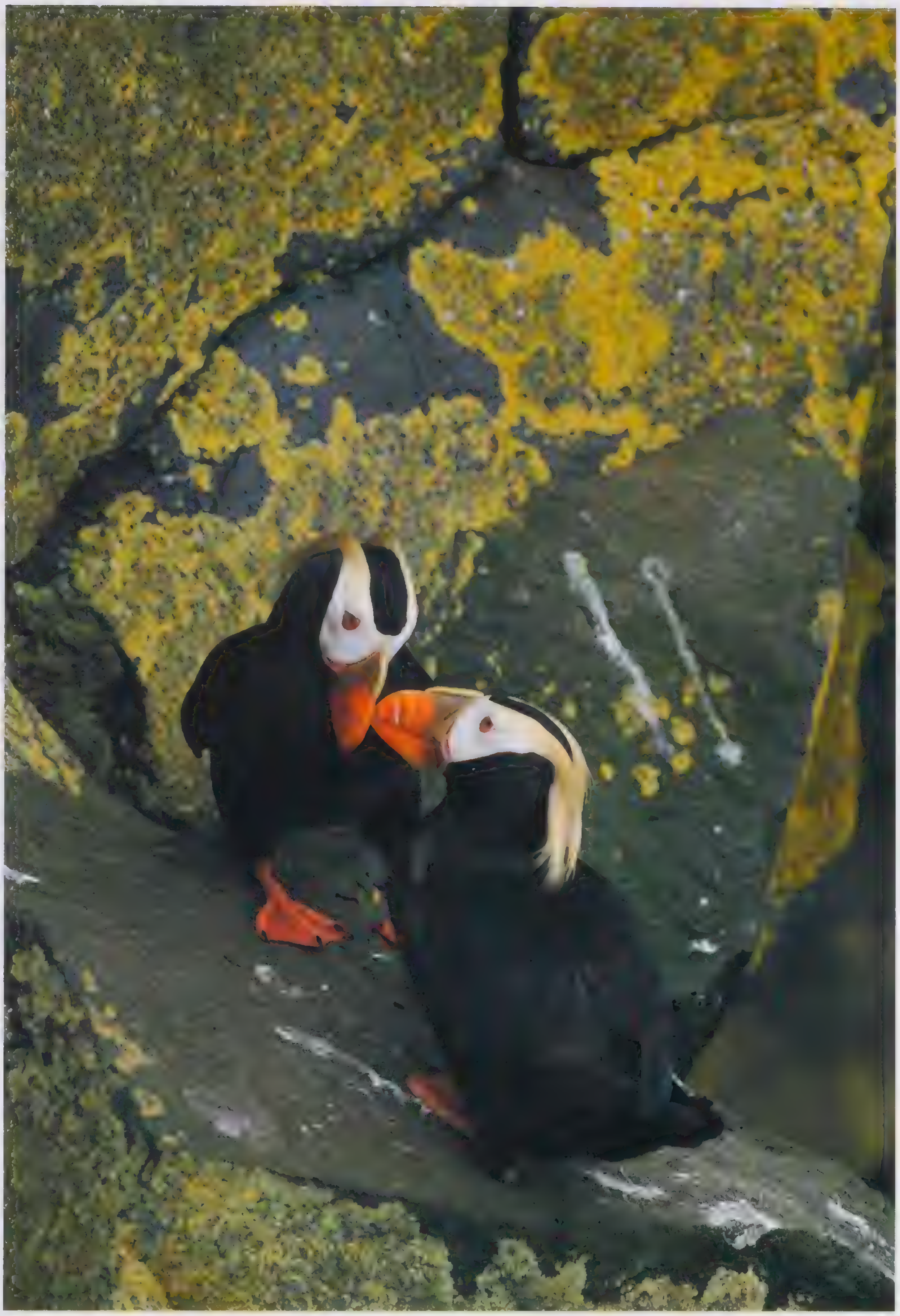
Photographic equipment needs on the Pribilofs are no different from what you need to photograph birds anywhere—a reliable camera (always take an extra one along for a backup), an assortment of lenses, extension tubes, flash, tripod, and gunstock mount. I prefer using a 500mm lens with a 1.4x extender to add additional magnification. But one of the most essential pieces of equipment is an electronic flash. On dark overcast days, gray and black seabirds on gray rocks all seem to blend together. A flash used in "fill flash" mode is essential to add a highlight to the eye as well as spark and contrast to the image. To extend the range of the basic flash, add a tele-flash to your system. The tele-flash is a small Fresnel lens added to the front of the flash to concentrate the light beam, extending its reach. Be sure to test your equipment and fill-light intensity before you arrive on location. Technical problems are much easier to work out in the comfort of your own home than in the field—particularly in a place like the Pribilofs.

Proper exposure is critical, and some seabirds—especially those with black-and-white plumage such as murres and puffins—require special attention. The contrast range between the white and black feathers makes retaining detail difficult in both the dark and light feathers. This is especially true on sunny days when the lighting ratio is greater than the latitude of the CCD or film.

The best exposure technique to use when you photograph murres, puffins, and some auklets is to take a spot-meter reading. Using your in-camera spot-meter, measure the whitest feathers on your subject and then open up the aperture 1-and-1/3 stops more before taking the shot. This will place the white feathers at a true photographic white while retaining detail in the feathers. The black feathers will fall respectively dark but still hold their detail. This method holds true for either digital imaging or slide film.

Birds such as Tufted Puffins, Crested Auklets, Northern Fulmars, and Red-faced Cormorants are dark gray and black. With dark sea and cliff walls in the background it is easy for the light meter to be fooled and overexpose the image. The best metering technique to use with these birds is to meter the known middle values that are in the same lighting condition as your subject. The cliff walls are studded with patches of lichen and grass tufts; use these mid-value objects to measure your exposure then recompose and take the shot. You'll get perfect results every time.

An ideal shooting condition on the Pribilofs is a thin cloud cover with soft penetrating light. This soft light reduces the contrast between the black and white feathers of many seabirds making it possible to obtain detail in both the dark and light feathers, while lending shadows that give depth to the scene and a highlight in the eye.



*To determine the correct exposure for black-and-white birds, such as these Tufted Puffins, take a spot-meter reading of the lichen on the rocks, recompose, and then take the photograph.*

Where should you shoot? Numerous rookeries exist on the island. Just southeast of the town of Saint Paul on the island of the same name is Reef Point, a definite hot spot. Most of the seabirds found in the Pribilofs can be photographed there. You'll find several spots where you can shoot back along the cliff walls. Rocks protruding from the cliffs provide sites for the birds to perch and rest. Of all the picture-taking locations, Rock Reef is probably the most aesthetic. There is a constant movement of birds along the cliff's edge with various species occupying prime photographic perches. In this one location you can photograph at least nine seabird species.

To the west of Saint Paul, toward Southwest Point, are two other productive shooting locations. Zapadini Point is a cliff wall standing at least 250 feet above sea level. The climb to the top of the cliffs can be tough, the paths leading upward across large slippery boulders. But these large boulders make good rest stops for a weary photographer with a load of heavy equipment.

The climb to the top of the Zapadini cliffs is well worth the effort. Once you get on top and the fog of the day dissipates, you will have a splendid view of the island. Along the cliff's edge you'll find numerous points to shoot back onto the nesting seabirds. Tufted and Horned puffins as well as Parakeet and Crested auklets nest in the rocky crevices within the cliff wall and spend a lot of time resting on the ledges adjacent to their nest burrows. Fulmars, kittiwakes, and cormorants build fragile

## TRIP FACTS

**Weather:** Foggy, rainy, and windy with an occasional sunny day

**Average Temperature:** 47 degrees Fahrenheit; generally in the high 40s to low 50s in June and July

**Best time to visit:** For maximum seabird activity, mid-June through July. Birds are also in their best plumage at this time.

**How to get there:** Peninsula Air from Anchorage, Alaska. www.penair.com

**Where to stay:**

**Saint Paul Island:** The King Eider Hotel
- Anchorage office – (907) 278-2312
- Saint Paul office – (907) 546-2359
- Web site – www.tanadgusix.com
- email – info@tanadgusix.com

**Saint George Island:** Saint George Hotel
- Anchorage office -(907) 272-9886
- St. George office – (907) 859-2255 or 859-2256
- Web site – www.stgeorgetanaq.com
- email – info.sgt@ak.net

**Clothing:**
- Rain gear is a must
- Warm clothing in layers
- Hat
- Mittens or gloves
- Water-resistant hiking boots
- Extras: Gaiters are a plus when walking through vegetation, and rain pants are a must when lying on the ground to photograph over the edge of cliffs

**Easiest way to see Saint Paul:**
- Saint Paul Island Tour
- (877) 424-5637
- Web site: www.alaskabirding.com
- email: pribilof@tdx.alaska.com

nests of grasses and seaweeds on the narrow ledges, each providing outstanding photographic opportunities.

These cliffs are also the nesting sites for both species of murres—Thick-billed and Common. The Thick-billed Murre is by far the most numerous species and easily distinguished from the Common Murre by its white-lined bill. Thick-billed Murres may be the most numerous seabird alive. Ornithologists estimate that the worldwide population of Thick-billed Murres numbers 6.8 million breeding pairs. This section of the island looks like Grand Central Station as the murres, puffins, and auklets zoom onto and off the cliff face.

When you are working at any of the rookeries, be very careful not to disturb the birds. Murres lay their one, highly elliptical egg on a very narrow, precipitous ledge. The egg is designed to roll in a very tight circle if disturbed. But loud, boisterous, and invasive activities can spook the birds, causing them to burst off the narrow ledges into flight, sometimes knocking their eggs off the cliff. A pair of murres produces only one egg at a time, and they may not re-lay if the first egg has been destroyed. It is a photographer's ethical duty always to use caution when photographing wildlife.

West of Zapadini Point is Ridge Wall, a mile-and-a-half long, 100-foot-high cliff that hosts the same species of seabirds found on the Zapadini cliffs. Ridge Wall has an excellent shelf protruding beyond the adjacent cliff wall, allowing great opportunities to shoot back onto nesting birds. Here you will have your best opportunities to photograph Red-legged Kittiwakes. The Pribilof Islands are one of only two places where this species nests in the Bering Sea.

Here you will also find nesting Northern Fulmars, in both light- and dark-phase plumage. Fulmars spend considerable time riding the wind currents along the cliff's edge, providing excellent opportunities for flight shots. You definitely want to preset your camera exposure before shooting these birds in flight. You will probably be shooting down on the soaring birds with dark ocean water as the background. Metering directly off the dark water usually results in an incorrect meter reading, overexposing the image. For best results, meter a mid-value subject such as lichen on the surrounding rocks or the green grass on the hillside, lock that exposure in the camera, then compose on the subject and shoot.

A 300mm lens is perfect for photographing fulmars as they soar past. Choose a bird flying at some distance away and use the track-focusing feature on your camera to keep the bird in focus. When the bird fills the frame to your satisfaction, begin shooting and don't stop until it has flown past. As it flies toward you, make a smooth pan as you follow the bird's flight path. Using a gunstock-mounted lens will make this easier, providing greater mobility while maintaining stability.

Saint Paul has more than just seabirds to photograph. Shorebirds, songbirds, fur seals, and arctic foxes are also present, providing unsurpassed photographic opportunities. Rock Sandpipers are abundant inland throughout the island. Gray-crowned Rosy-Finches, Lapland Longspurs, Snow Buntings, and Winter Wrens are the only passerines regularly found on the island, and they can be photographed in picturesque settings among the abundant variety of northern wildflowers.

The Pribilof Islands provide a unique experience for bird photographers. The islands are remote, visited by few people for any length of time, and despite the horrendous working conditions, the photography is thrilling. There's nothing quite like scrambling down a wet, grassy slope to stand on a narrow ledge 100 feet above the waves crashing onto a boulder-strewn shore, to photograph spectacular puffins and auklets landing just inches away. That amazing experience can be yours on the Pribilof Islands. ◆

*Bobby Harrison is an award-winning nature photographer. He teaches art history and photography at Oakwood University in Huntsville, Alabama.*

American Avocet
Bold black-and-white upperparts
Long upturned black bill
Long gray blue legs
…n Flycatcher
☐ Open ocean
☐ Ocean shores
☐ Lakes, rivers, & wetlands
☐ Tundra
☒ Fields & grasslands
Shrublands &
☐ Desert
☐ Woodlar
☐ Rocks, cli canyons
☐ Mountair
☐ Urban & suburb
☐ Feede
…ellied Plover
…is squatarola
play ▸
stop ■
Audio Description
Audio
Voice
Similar Sounding
zoom
range
sounds
…y backyard
South Dakota
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## Of a Feather

*by Scott Weidensaul*
*(Harcourt: 2007)*

## The Life of the Skies

*by Jonathan Rosen*
*(Farrar, Straus, and Giroux: 2008)*

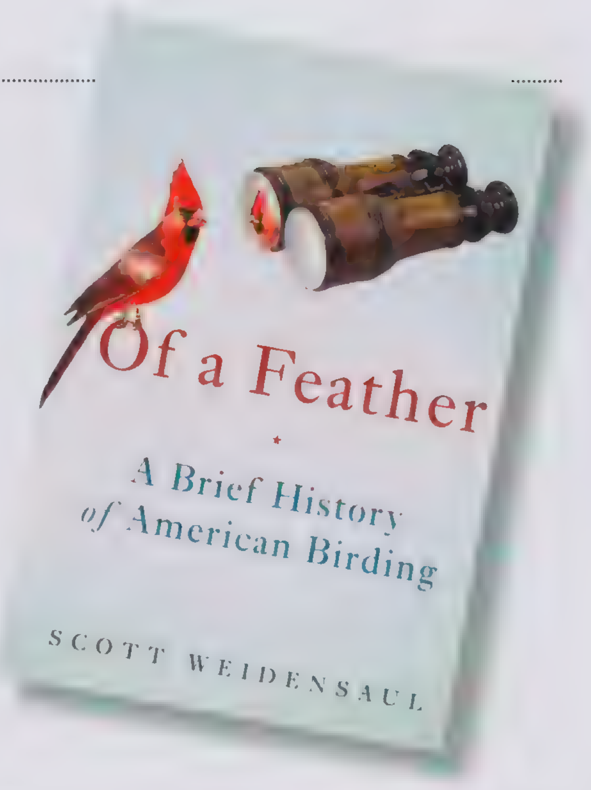
### Reviewed by Stephen J. Bodio

Birding has certainly come of age, and with these two excellent histories it has become possible for those of us who are addicted to this sport (pastime? obsession?) to examine where we have been and where we are going.

These books are complementary rather than competitive, and each adds its virtues to the other. Weidensaul, the more experienced and "scientific" birder, gives us history and structure. Rosen, a relative newcomer, also roots his book in history, but enthusiastically chases down digressions literary, philosophical, and geographical. Weidensaul provides just enough personal anecdote to leaven his history, Rosen enough history to anchor his diversions.

If you are going to read both—as I think any birder interested in birding's roots and branches should—I recommend starting with Weidensaul. He erects a sturdy structure on which the information, anecdote, and ornament of both books can stand. After a quick field trip on the coast of Maine he wings past the Native Americans and starts with early colonists' reports. He rediscovers one of the early observers, John Lawson, who described many species in his 1709 *A New Voyage to Carolina.* Later protobirders are better known and get more space—Mark Catesby, William Bartram, and, of course, John James Audubon. Of Bartram he perceptively writes: "For the first time, we encounter not an immigrant, but an American naturalist on his home turf, a man exulting in the wilderness he explores." We sometimes forget its splendor today, even as we routinely lament its loss; as Weidensaul writes, speaking of Audubon: "Simply imagine the raw spectacle of a healthy, undiminished continent's worth of songbirds overwashing the winter-gray land with movement and color, the incalculable hundreds of millions of warblers, vireos, thrushes, orioles, tanagers, flycatchers, and more. Even today, after centuries of erosion, the great aerial ballet of spring migration is a staggering thing to see. In those days, it must truly have been breathtaking. The question isn't why were these men ensnared by America's birds: the question is why wasn't everyone struck dumb by them?"

Alexander Wilson and his brilliant successor, Audubon, properly get a chapter to themselves. As Weidensaul remarks, Wilson may deserve credit as father of American ornithology, but Audubon's "very name has become synonymous with birds." As a painter he was touched by genius, unlike the wooden Wilson; as a self-promoter he had no equal, recreating himself in the capital-R Romantic image of the American frontiersman: "Whereas at Mill Grove he had tried to hide his humble origins and project an air of nobility, when he eventually traveled to England and Scotland in the 1820s to promote his *Birds of America*, he made sure to look every inch the 'American Woodsman' he proclaimed himself to be . . . it was a shrewd affectation that fit perfectly with the Romantic view of the wilderness then in vogue, and it would have worked equally well in our celebrity-conscious century." But despite his sometimes-exaggerated compositions and his unreliable writings, it is hard not to see in Audubon the beginnings of the popular image of birds in our society. Weidensaul asks of Audubon and his contemporaries "What was it about America's frontier that kept turning rudderless dreamers, ne'er-do-wells, and idlers into maniacally focused naturalists?" As the frontier moves west, his cast continues to be eccentric, from the Hungarian fantasist Xantus to the German-born and renamed Prussian Charles Bendire. Many were Indian-fighting military men or Army doctors, whose names (Bendire, Coues, Hammond) are now associated with their birds—"men on horseback with guns" in Weidensaul's phrase. Another, also introduced in the chapter on Shotgun Ornithology, is a woman, Florence Merriam Bailey. She wrote both the magisterial and still-useful *Birds of New Mexico* and the first popular bird guide, *Birds Through an Opera Glass.*



At this point, as Weidensaul says, the narrative fragments. The frontier moved west and closed, while ornithology itself remained rooted (as it still was until well after World War II) in the East, in Boston and New York. Scientific collectors and hunters began their conflict with what Weidensaul aptly calls the "Angry Ladies." As prominent an ornithologist as William Brewster bought 61 Ivory-billed Woodpecker skins, some from a collector who advertised in the American Ornithologists' Union (AOU) scientific journal *The Auk.* When asked in 1902 to address an Audubon Society meeting, the incoming president of the AOU sniffed, "I do not protect birds. I kill them."

The tide was turning, as suffragettes and feminists protested feathered hats and the naturalist Ludlow Griscom began to convince skeptics that he could reliably identify a bird at a distance. Silliness and virtue could characterize both "sides." Some of the protectionists were sentimental about songbirds and perpetrated the "evil hawk" myth, while "the bloodless sport of field identification" wouldn't have been possible without shotguns and collectors. But good binoculars and the pioneering artwork of a student of Griscom's (Roger Tory Peterson) led to a new synthesis. Weidensaul is particularly good on the evolution of the field guide, from Peterson through Sibley and Kaufman, and clearly explains the virtues of each.

He ends with modern birding linking once more with science, giving as an example the banding studies he and fellow amateurs are doing with saw-whet owls. A sentence from this account could ably sum up his book: "[T]his trend has been given the catchy title 'citizen science,' but in fact, this remerging of science and hobby brings ornithology back to its amateur roots in a way that is of immense and immediate benefit to the birds—an integration . . . of the many threads that form the tapestry of American bird study: science, sport, and conservation."

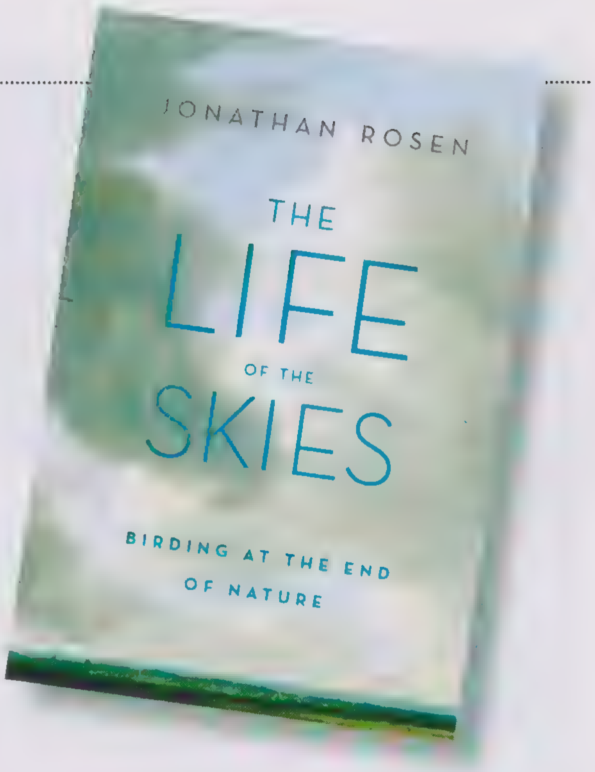
◆

If Scott Weidensaul loves the science of birding, Jonathan Rosen fell in love with its soul. *The Life of the Skies* is a love letter to birding by a city boy, a lifelong New Yorker, who was almost religiously stricken when he overheard a stranger say, "The warblers will be coming through Central Park soon." He writes: "Somehow, for reasons I still can't explain, I knew right then that even though I wasn't sure what warblers were, I was going to go and find them."

While his travels would ultimately take him as far afield as Israel and (in his reading of Wallace) the Malay Archipelago, New York actually isn't a bad place to start birding. Not only do you have Central Park; you have American birding's oldest "infrastructure." New York was Audubon's last perch, home to the American Museum of Natural History, Teddy Roosevelt, and the place where a young Roger Tory Peterson honed his skills. Or as Weidensaul put it, "For more than two centuries, the center of American bird study was a narrow stretch of the Eastern seaboard, anchored by a series of academic institutions and active bird clubs stretching from Washington, D.C., to Philadelphia, New York City, and Boston." From these roots, Rosen spins something of a history of birding and our interest in birds. But while he covers some of the same ground as Weidensaul, especially on Audubon (and gives attention to Teddy Roosevelt, one figure surprisingly neglected by Weidensaul), his book is more a series of deeply felt and thought out encounters with bird men, be they artists or scientists. He muses on Audubon, Thoreau, Roosevelt, Alfred Russel Wallace; Walt Whitman, Emily Dickinson, and Robert Frost; on ivory-bills and birds-of-paradise; on hunting, falconry, writing, religion, and doubt.

Somehow he pulls it all off. Though he has never been a hunter himself, he understands both birding's cognitive links with hunting and hunting's virtues: "I've only grown more aware of the role of hunters and fishermen—who helped create the wildlife refuge system in which the ivory-bill seems to have survived. It was a shock to discover that wildlife management areas were managed so that people could shoot the wildlife. But it was bracing and somehow liberating, because it altered a definition of human nature that seemed truer, if less flattering, than the one I was used to." He shows similar feelings toward Roosevelt, noting that "it is important to know that the president who shot the most animals was, perhaps, the one who saved the most as well."

He is also—unusual among modern "nature" writers (a label which makes him, and me, uncomfortable)—religious. He is perfectly comfortable with evolutionary biology (and very good on Wallace, who was also something of a believer) but looks at some things from a unique angle. "Personally, I believe that there is a divine spark in us which binds us to the rest of creation, not merely as fellow creatures, but as caretakers, with an earthly responsibility like the one we imagined for God. I'm not saying you can't be a conservationist without this feeling—it's just harder for me to understand what we owe the Ivory-billed Woodpecker without it." He is very funny about Huxley, the Richard Dawkins of his day, infuriating an evolutionarily-inclined Victorian clergyman-naturalist so badly that it took 33 years for him to acknowledge Darwin as "our great master."



*The Life of the Skies* has a few minor flaws, mostly in editing. Roosevelt's statue in front of the American Museum is flanked by an African and an Indian—not two Indians; the Hall of African Mammals was constructed by Carl Akeley, not "Conrad Aikley." Why must I tell a New Yorker this? But like Weidensaul, I grew up as a science kid, and people like these were my mentors. Converts often bring both enthusiasm and new perspectives.

His greatest insight is that even a "diminished thing" can have magic, and intimations of infinity. At the end, he brings Wallace's grail and the quest for the ivory-bill back home to Tanner's Spring in Central Park. "Tanner's Spring is the merest echo of the Big Woods of Arkansas. But the Big Woods of Arkansas are themselves the merest echo of what they used to be. And they are all still connected. Just as backyard birds are in fact birds of paradise. It just depends on your definition of backyard—and paradise." ◆

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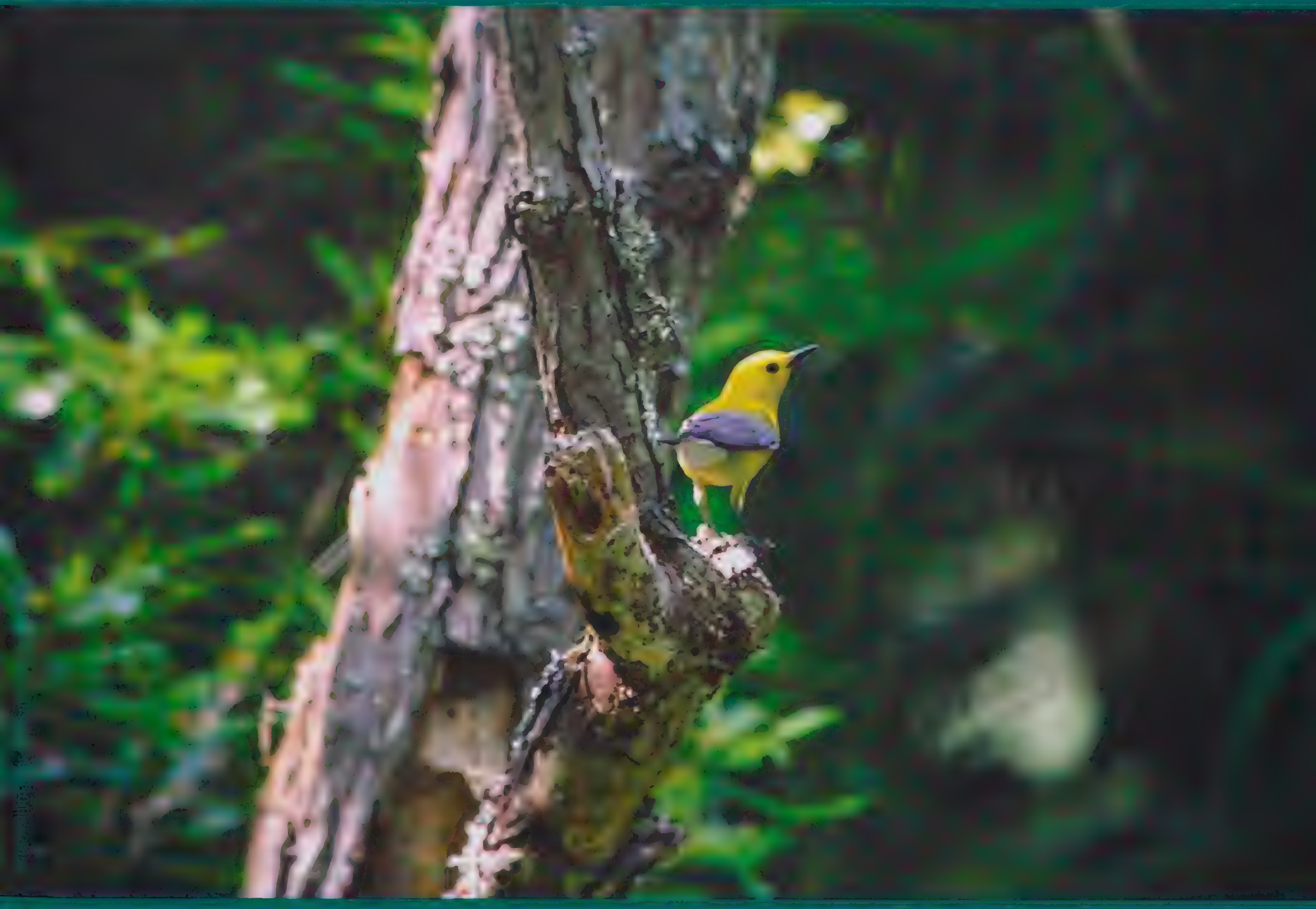

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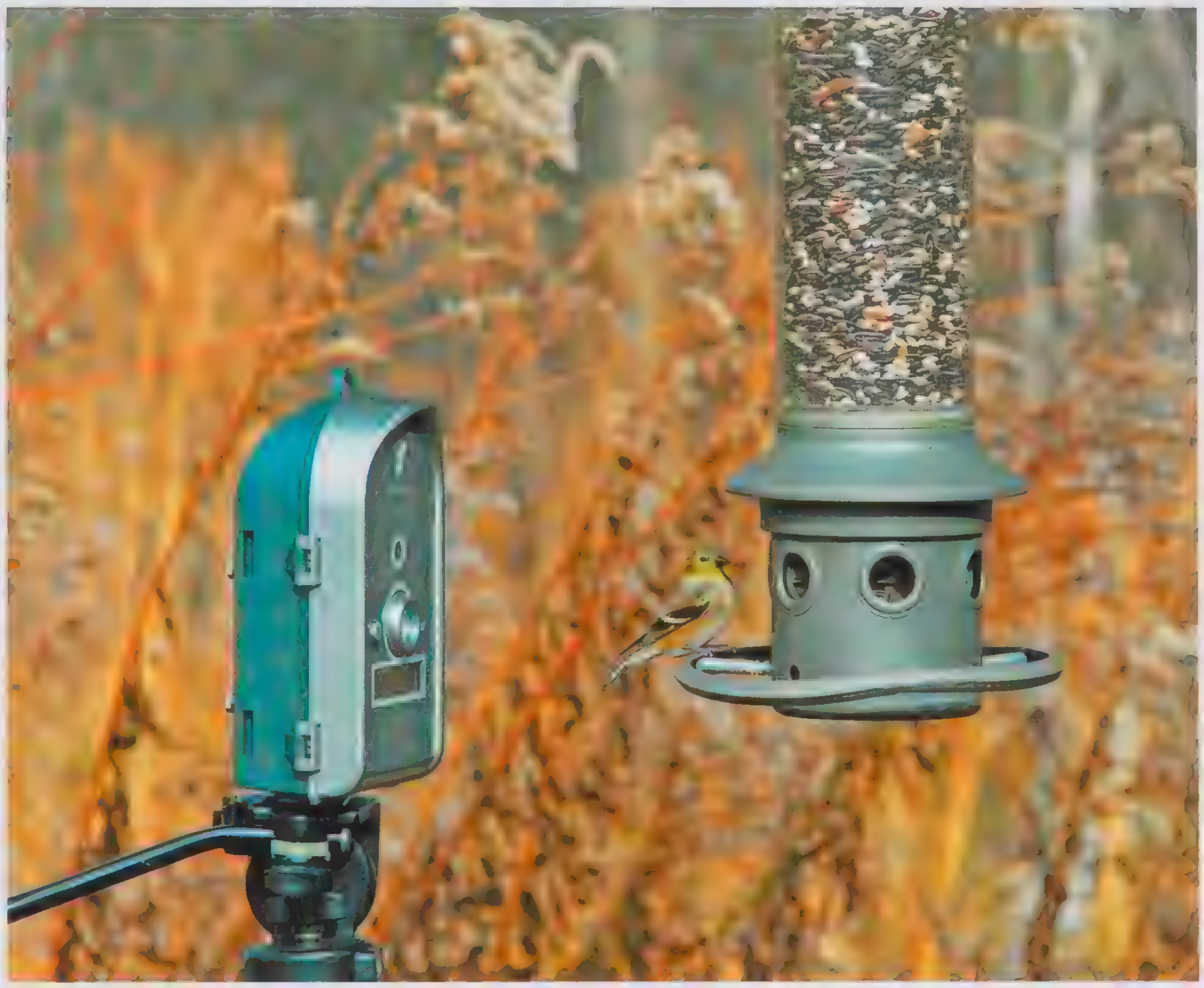
# BirdCam by Wingscapes



For backyard birders who enjoy taking pictures of the birds at their feeders, Wingscapes has developed a great new product—the BirdCam. It is basically a weatherproof, motion-activated digital camera that will automatically snap still pictures or short bursts of video whenever the BirdCam's infrared sensor detects a bird in its viewing area.

I can vouch for the fact that it is quick and easy to set up and start taking pictures. (I think it took me longer to figure out how to get it out of the box than it did to set it up for picture-taking.) The BirdCam can be easily attached to a post or tree trunk near your feeder by using the bungee cords (supplied) or setting it up on a tripod. I chose the latter, which made it easy to move the BirdCam around to a variety of locations in the Lab's bird-feeding garden.

I simply placed the BirdCam about 18" from the feeder (the minimum close-focus distance), adjusted the focus manually, and let the birds do the rest. They were completely unafraid of the device—in fact, goldfinches kept landing on top of it before going to the feeder.

In addition to the motion-activated feature, the BirdCam comes with a small, hand-held remote control, so you can snap pictures or take videos manually—a handy feature if you only want pictures of specific birds.

The BirdCam takes 3.1 megapixel jpeg digital images (High 2048x1536; Medium 1328x996; and Low 640x480) and 10-second videos (AVI files, 640x480, 10 seconds at 10fps). It has 32 megabytes of built-in memory but can also use an optional SD card, holding up to 4 gigabytes. Image output is through a USB cable, TV out, or an SD card. It is quick and easy to download the images to a computer. The BirdCam is powered by 4 D-cell batteries, or you can use an optional AC adaptor. It measures 9" high by 3 5/8" deep by 5 1/2" wide and weighs 2 pounds 7 ounces including batteries. —*Tim Gallagher*

Price: $249.99

TIM GALLAGHER (2)

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**Ornithology Field Camp: Flathead Lake**
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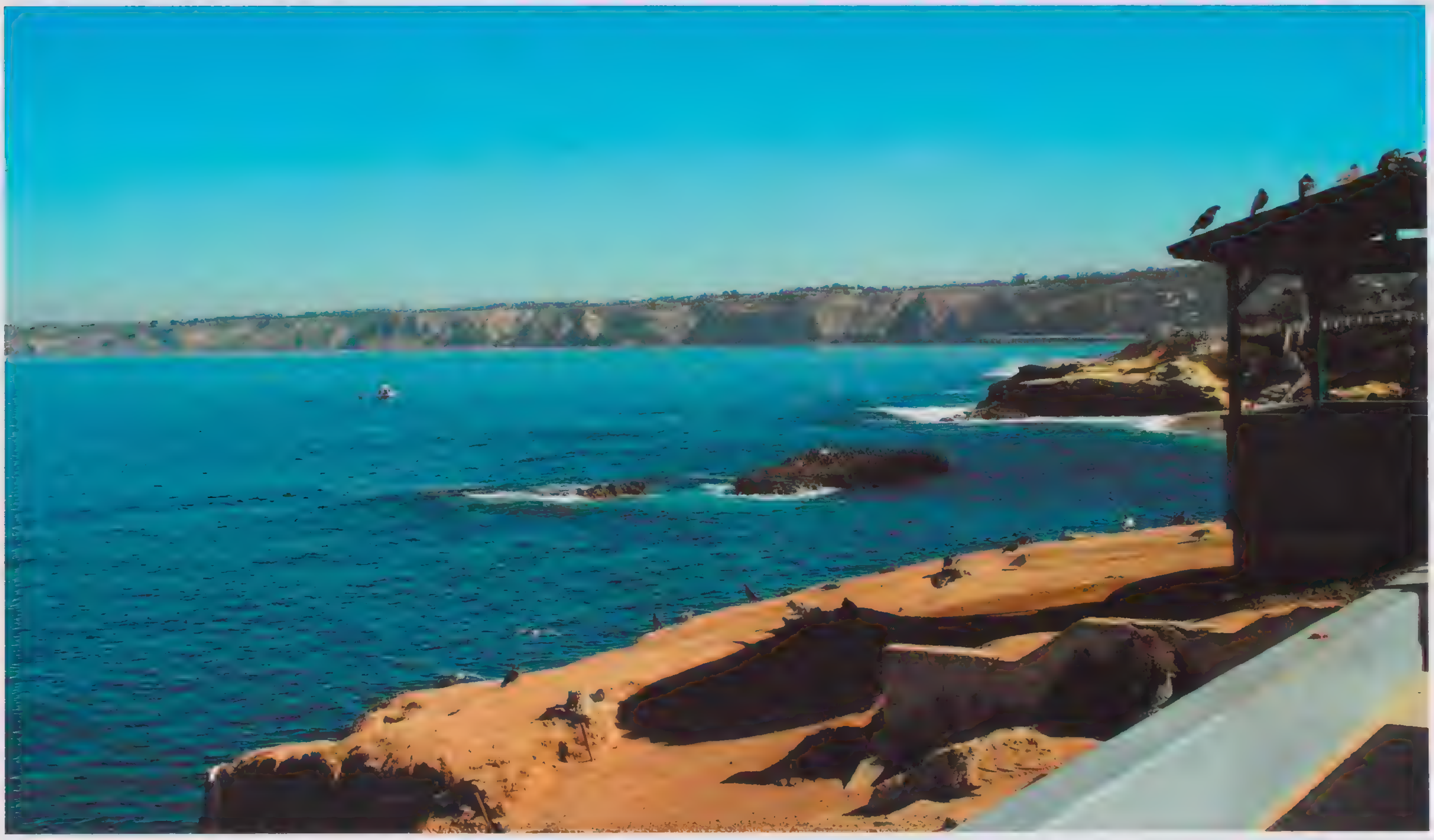


TIM GALLAGHER (2)

# La Jolla, California

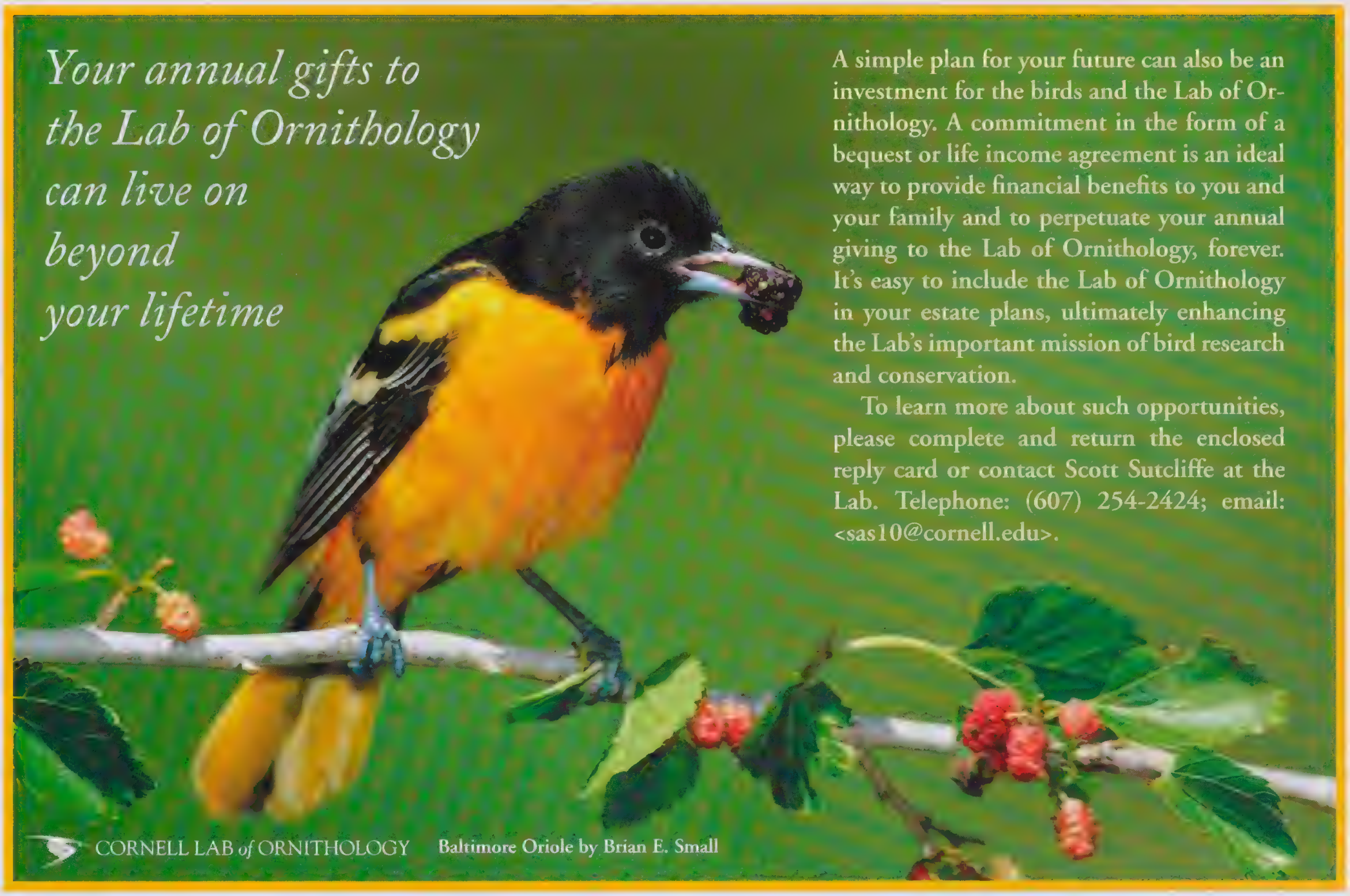
La Jolla has it all. Less than 20 minutes from downtown San Diego, it has a rugged scenic shoreline, with cliffs, rocky outcroppings, and secluded coves, plus plenty of interesting birds to watch, such as shorebirds, gulls, Brown Pelicans, and an occasional Peregrine Falcon.

It's best to start by birding along the cliffs between Point La Jolla and the Children's Pool—a tiny lagoon that should probably more aptly be called the Harbor Seal Pool, because these charismatic marine mammals took it over long ago. The Children's Pool has become a favorite area of bird photographers, because it's so easy to get close-up shots of Brown Pelicans, Brandt's and Double-crested cormorants, and various gulls on the rocks there.

Winter is the best time to bird in La Jolla, in terms of species diversity. During strong westerly winds, Point La Jolla is a good place to watch for pelagic species, such as shearwaters, flying past over the deep water just offshore.

*—Tim Gallagher*

**DIRECTIONS:** Driving north from San Diego, exit at La Jolla Parkway (Highway 56) going west and follow the road for five-and-a-half miles. Turn left on Torrey Pines Road and then right on Prospect Avenue and right again on Coast Boulevard. Then start looking for a parking place, which can sometimes be difficult in this favorite tourist spot, so plan on getting there early in the day.



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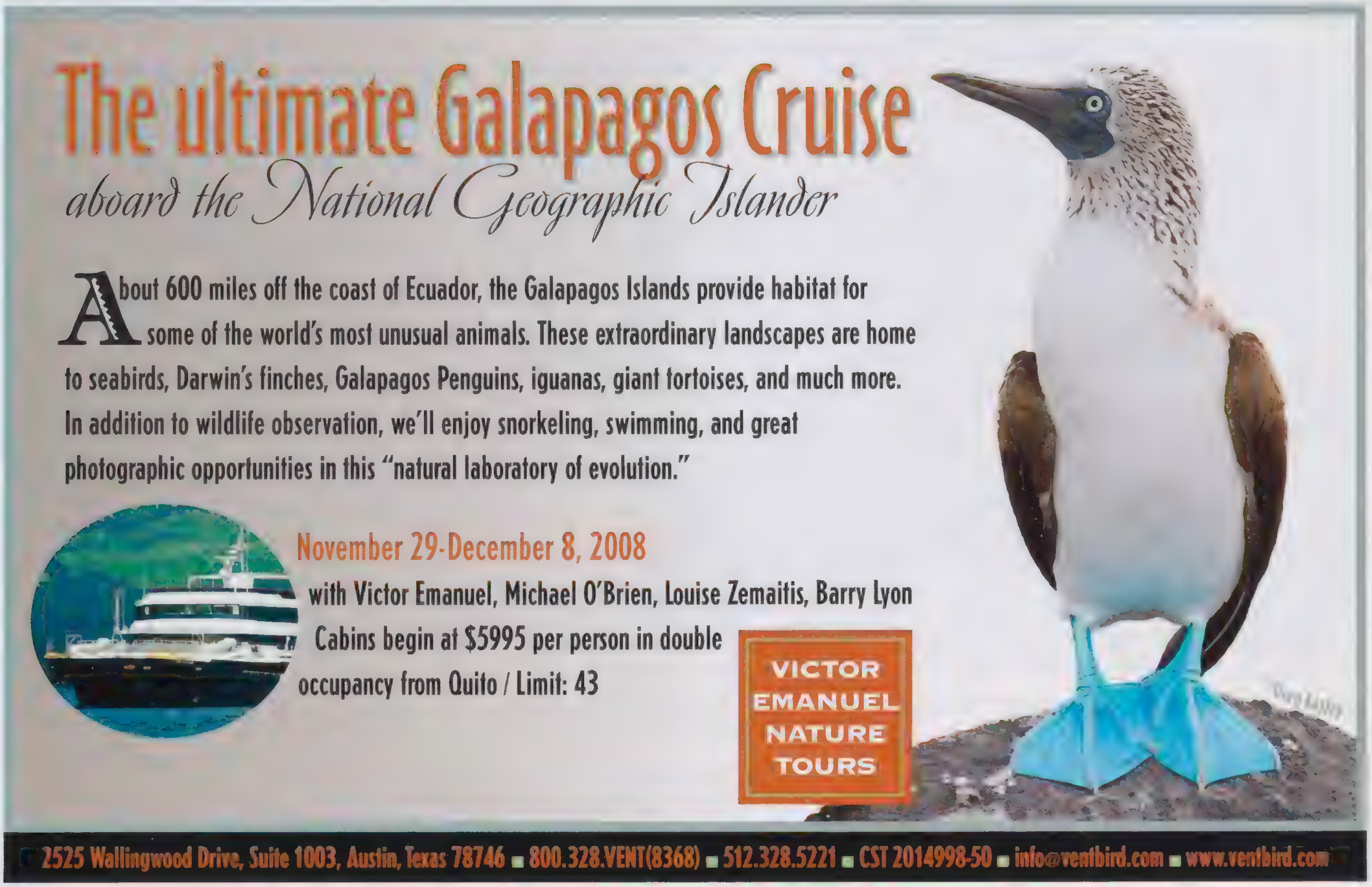
Baltimore Oriole by Brian E. Small



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*The Catbird Seat*

# Merlin Encounter

*by Pete Dunne*

*Illustration by Jeff Sipple*

It was midmorning, midweek, midseason and the skies were blue. The last few seats on the hawk watch platform at Cape May Point State Park were filling fast when someone shouted:

"MERLIN!"

Two hundred lives went on hold.

Up in the Peanut Gallery, where the inner circle circles their wagons, conversations stopped midsyllable.

"So I says to this Bozo, if you call this wood well-seasoned, you got another thing . . ."

"Oh, sure, he might think that he saw one. But I've seen this guy in the field, and let me tell you, he couldn't tell a . . ."

"No, I was there this morning. Spent two hours watching the feeder. But aside from a couple of ruby-throated hummers I didn't . . ."

"You don't like capers in your egg salad? Oh, man, how can anyone not like . . ."

The interruption hardly mattered. At the hawk watch, conversation is just what happens between hawks and chances are nobody would remember what they were talking about when post-Merlin conversation resumed.

Down at the end of the platform, C. and O. were discussing the pros and cons of buying the new Uberglasse binoculars that he coveted (but insisted they couldn't afford) and that she wanted him to buy (because it opened the door, tit for tat, for the spotting scope she wanted).

Standing by the rail was L., who was quietly seething about: "That bum! That lousy, lying, two-faced bum. He's been angling for my job ever since he joined the company, just waiting for an opportunity to rub my nose in . . ."

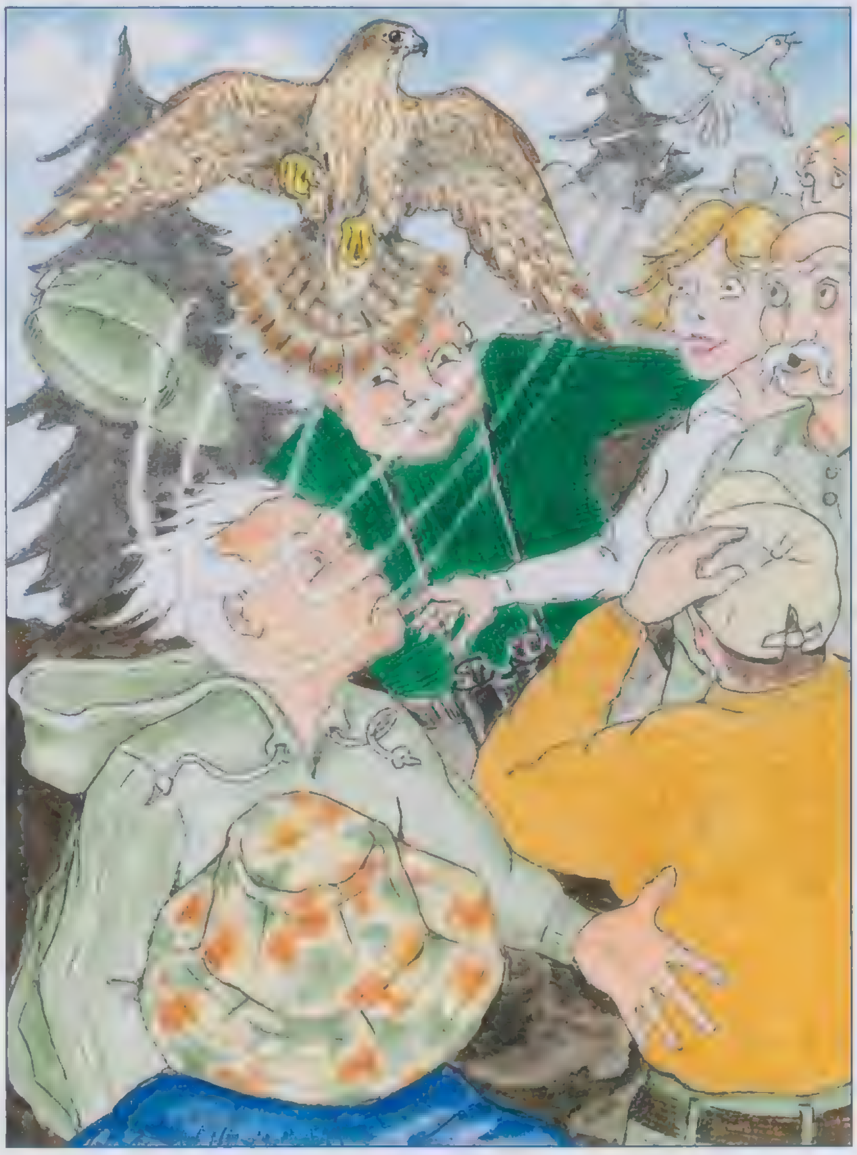
On the upper deck was U., who was working on the *London Times* crossword puzzle and mulling over the possibilities inherent in the suggestion: "a venatic adornment, fit for m'lady's fist, in Latin" (eleven letters). Next to her was M., who was mulling over the merits of scopes—i.e. riflescopes—and whether to mount a Mil-Dot reticle or Heavy Duplex on his new deer rifle. He'd always used a Mil-Dot but thought, maybe, given his failing eyesight, the crosshairs on the HD would be better in heavy cover.

Speaking of dots, not far away was B., who was trying to convince her two home-schooled children that searching for little dots in the sky (these were hawks) was much more interesting than playing Ultimate Super Mega-Universe Destroyer III. And just down the row was A., who was thinking that B. was really cute and (apparently) unbanded—a state that did not apply to him or to the young, chic, thirty-something couple who had just walked up on the platform only to discover that they were surrounded by bird watchers!

Not quite sure how to proceed (i.e., give any indication they noticed that they were surrounded by bird watchers or show via smiles and nods that they didn't mind being in the presence of bird watchers), they made their way, oh-so-very-casual-like, to the far edge of the platform so they could make their disparaging comments in whispers (so as not to offend anyone).

On the lower deck, R was talking to her mother on her cellphone. I. was worrying about the "check engine" light that had just gone on in her Volvo. U2. was studying the raptor plates in her 1972 edition Golden (Field) Guide, and S. was just getting up to head for the bathroom because he really, really, really . . ."

Then someone shouted "MERLIN!" And as the small, dark falcon flashed past the hawk watch, 200 lives went on hold (except the thirtyish couple who wondered what all the excitement was about).

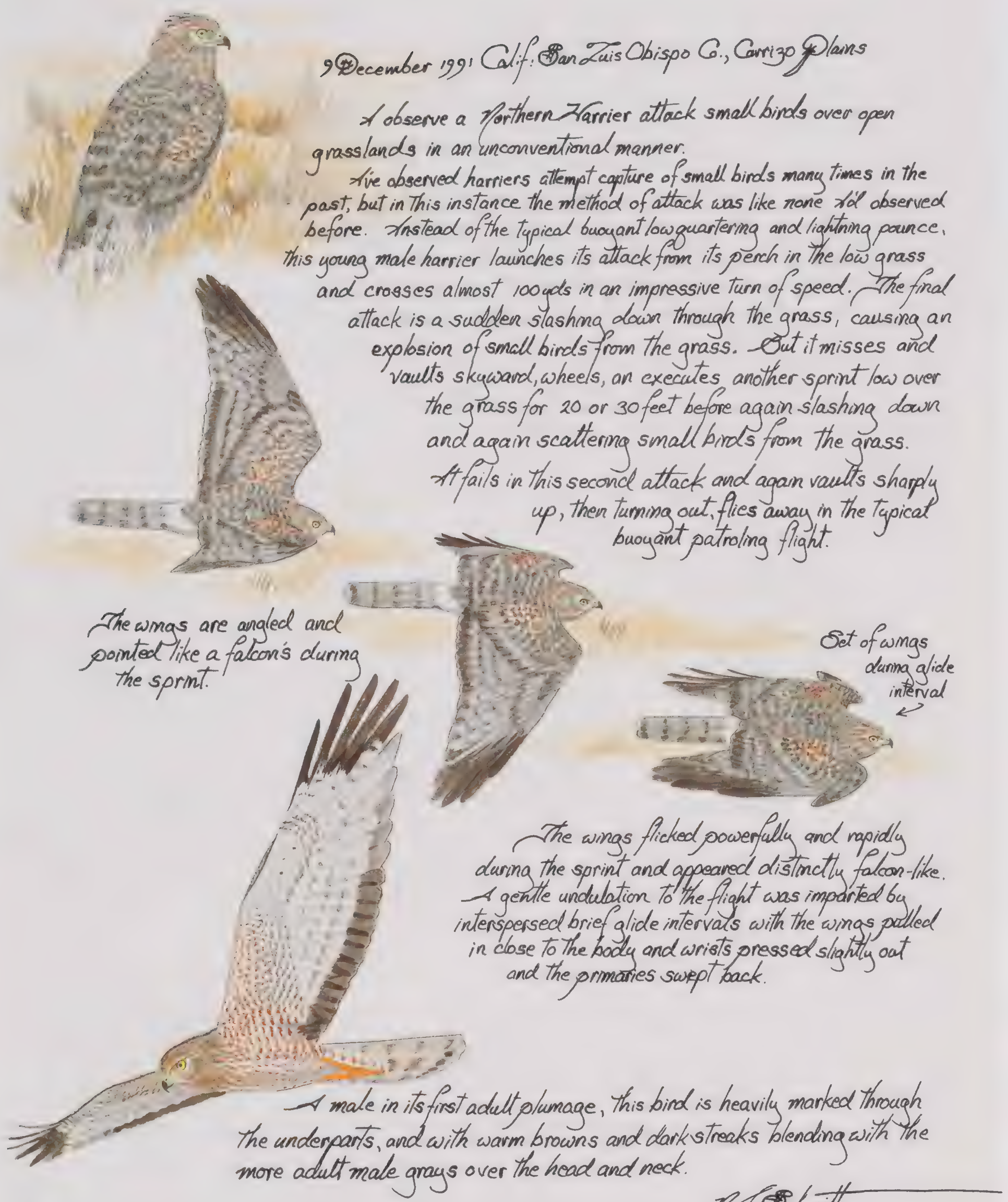


Three-point-eight seconds later, the bird was gone. Everyone (except the thirtyish couple) exchanged nods and smiles and retreated back to their lives.

◆

# A Naturalist's Notebook

by John Schmitt



9 December 1991 Calif: San Luis Obispo Co., Carrizo Plains

I observe a Northern Harrier attack small birds over open grasslands in an unconventional manner.

I've observed harriers attempt capture of small birds many times in the past, but in this instance the method of attack was like none I'd observed before. Instead of the typical buoyant low quartering and lightning pounce, this young male harrier launches its attack from its perch in the low grass and crosses almost 100 yds in an impressive turn of speed. The final attack is a sudden slashing down through the grass, causing an explosion of small birds from the grass. But it misses and vaults skyward, wheels, an executes another sprint low over the grass for 20 or 30 feet before again slashing down and again scattering small birds from the grass.

It fails in this second attack and again vaults sharply up, then turning out, flies away in the typical buoyant patroling flight.

The wings are angled and pointed like a falcon's during the sprint.

Set of wings during glide interval

The wings flicked powerfully and rapidly during the sprint and appeared distinctly falcon-like. A gentle undulation to the flight was imparted by interspersed brief glide intervals with the wings pulled in close to the body and wrists pressed slightly out and the primaries swept back.

A male in its first adult plumage, this bird is heavily marked through the underparts, and with warm browns and dark streaks blending with the more adult male grays over the head and neck.

N. J. Schmitt

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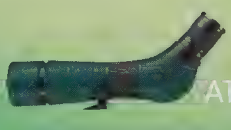

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# LIVING BIRD

*Spring 2008 Volume 27 / Number 2*

CORNELL LAB *of* ORNITHOLOGY

*Our Mission: To interpret and conserve the earth's biological diversity through research, education, and citizen science focused on birds.*

***Cover:*** Famed bird photographer Arthur Morris captured this remarkable portrait of an adult Sandhill Crane with its chicks not far from his home in south Florida. In most parts of their range, the cranes are highly migratory, but they are year-round residents in Florida.

***Back cover:*** A Common Loon carries a chick on its back as it floats peacefully on a picturesque northern lake. See more pictures of loons in the article on page 36. Photograph by Marie Read.

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# LIVING BIRD

*Spring 2008* *Volume 27 / Number 2*

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Cornell University

## Letters

ERIC DRAPER

## Undeserved Tributes?

I was disappointed and saddened to see glowing tributes and photographs of George Bush in your recent issues of *Living Bird* and *BirdScope* (Winter 2008). It takes no genius to plot the path of devastation this pawn of corporate America has wrought upon the regulatory framework that protected the natural environments of this country before he was elected. To give him credit for conservation when he has stood for drilling and destruction is preposterous. For the Lab to be lowered to this partisan rhetoric is a serious disappointment.

ROBERT L. MITTON
CAMBRIA, CALIFORNIA

I was astounded, dismayed, and disgusted with your editorial in the Winter 2008 issue of *BirdScope* comparing George W. Bush to Theodore Roosevelt. I can understand your delight at having this administration finally launch an environmental initiative, especially as it pertains to birds, and in the effort you and the Lab were deeply involved in. But to treat the accomplishments of other presidents who set aside habitat, passed the Endangered Species Act, etc., as nothing compared to George Bush's latest action is astounding. In the issue of *Living Bird* that accompanied *BirdScope*, the article on Alaska and the threats posed by this administration to critical birding habitat must have appeared inconsequential to having George Bush do a public relations piece on the importance of birds. Is a "State of the Birds Report" more important than protecting critical habitat and preventing species extinction? To compare this president—who has done so much to destroy habitats and the species dependent upon them—to Theodore Roosevelt is mind-boggling to say the least.

JOYCE KELLY
ELLICOTT CITY, MARYLAND

*I appreciate, and in some respects sympathize with, your sentiments about our positive attention to the White House announcements. As I hope is clear from a number of my editorials in previous issues of* Living Bird *and* BirdScope *over the last few years, I am no fan of the environmental record of this administration. (Indeed, I am currently drafting an editorial against permitting mountaintop removal for coal mining.)*

*However, I do not regard it as "partisan rhetoric" to draw attention to, and even applaud, any genuine initiatives—by any administration—that clearly will promote conservation of birds and their habitats. When such initiatives are launched by an administration with an otherwise dismal record of environmental protection, it strikes me as even more important to give them some public exposure and credit, on the theory that a little positive reinforcement could help build momentum in the right direction.*

*Over the past year I, and a number of my colleagues at other conservation organizations, have personally discussed these initiatives a number of times with Interior Secretary Kempthorne, his deputy directors, and senior officials at the U.S. Fish and Wildlife Service. It is clear that significant action is being taken and real investments are in the works. In my view, genuine movement toward increased protection for birds and their habitats is cause for optimism and applause, no matter* *who initiated the process and no matter how odious the previous record may be. I assure you that I—and the Cornell Lab of Ornithology—will continue to speak out on behalf of respect for scientifically justified environmental laws and conservation measures, without reference to political or partisan affiliations.*

*Many thanks for your interest and engagement.*

JOHN FITZPATRICK
LOUIS AGASSIZ FUERTES DIRECTOR
CORNELL LAB OF ORNITHOLOGY

TIM GALLAGHER

## No Escape

In the latest issue of *Living Bird,* you noted the birding opportunities in La Jolla, California, where I live (Great Birding Escapes, Winter 2008). Indeed, about two years ago I was at Children's Pool with guests from England, watching the seals, when a Peregrine Falcon came off the ocean at full speed and attacked one of the pigeons in the flock at the little gazebo. The falcon flew away to the north with its prize. What a sighting!

ART COOLEY
LA JOLLA, CALIFORNIA

## A Reviewer Reviewed

I am not in the habit of writing reviewers personally, but I was so delighted with Stephen Bodio's review of my book, *The Life of the Skies* (Winter 2008), that I cannot resist. This is especially because, in the first flush of my discovery of birding, I read his book, *A Rage for Falcons,* and it remains a model for me of the best sort of writing about birds and the natural world and men. It also helped enlighten me about hunting and humans. I was mortified by the two mistakes he notes—I pass the statue of Roosevelt nearly every day and was strolled past it as a baby, but in my mind it was always two Indians—so much for looking closely. Perhaps if I were an out-of-towner I'd have noticed. As for "Aikely" hall, I fear Conrad Aiken unconsciously was asserting himself. In any event, no review has captured what I consider the essence of my book as well as Mr. Bodio's, and I am deeply grateful to him—not only for his words about my book, and his understanding of it, but for his example as well.

JONATHAN ROSEN
NEW YORK, NEW YORK

## *From the Editor*

As I write this column, it is early April—a time when we're often still in the doldrums birding-wise at Sapsucker Woods. Although it's been more than two weeks since the official start of spring, winter weather can hang on through April in Upstate New York, with freak snowstorms, episodes of freezing rain and sleet, and chilly temperatures often the norm.

Still, I know it won't be long now. The boisterous flocks of grackles have long since arrived, the kestrels are on territory in the open area beside Sapsucker Woods, and last Sunday I heard my first Eastern Phoebe of the year calling from the field behind my house. Although it may yet snow again, winter's back is definitely broken. By the time most of you receive this issue of *Living Bird,* the trees in the sanctuary will be leafing out and the warblers will be here in force.

Speaking of *Living Bird,* I'm very pleased with the article line-up in this issue—only the second since our redesign of the magazine. I write about a journey I took through northern Peru this past September, revisiting some of the areas where remarkable ornithological discoveries took place in the 1970s and '80s. I was fortunate enough to spend time there with famed ornithologist and artist John O'Neill, who actually discovered a number of new species in the country and was one of the lead authors of the remarkable new field guide, *Birds of Peru,* some 40 years in the making. Ace bird photographer Marie Read provides an intimate family portrait in pictures and words of an American icon—the Common Loon. And our own Charles Eldermire, the Lab's public education outreach associate, reports on a study of nesting Black Oystercatchers he worked on in Alaska before he headed south to Ithaca.

I hope you'll enjoy these features as well as all of the columns and departments in this issue. Please let us know if you have any comments, suggestions, or complaints about anything we publish at the Lab of Ornithology. You can write to us at the address below, or visit our web site, www.livingbird.org. We appreciate your input.

*Tim Gallagher*
*Editor-in-Chief*

We welcome letters from readers. Write to The Editors, *Living Bird,* 159 Sapsucker Woods Road, Ithaca, New York 14850, or send email to livingbird@cornell.edu.

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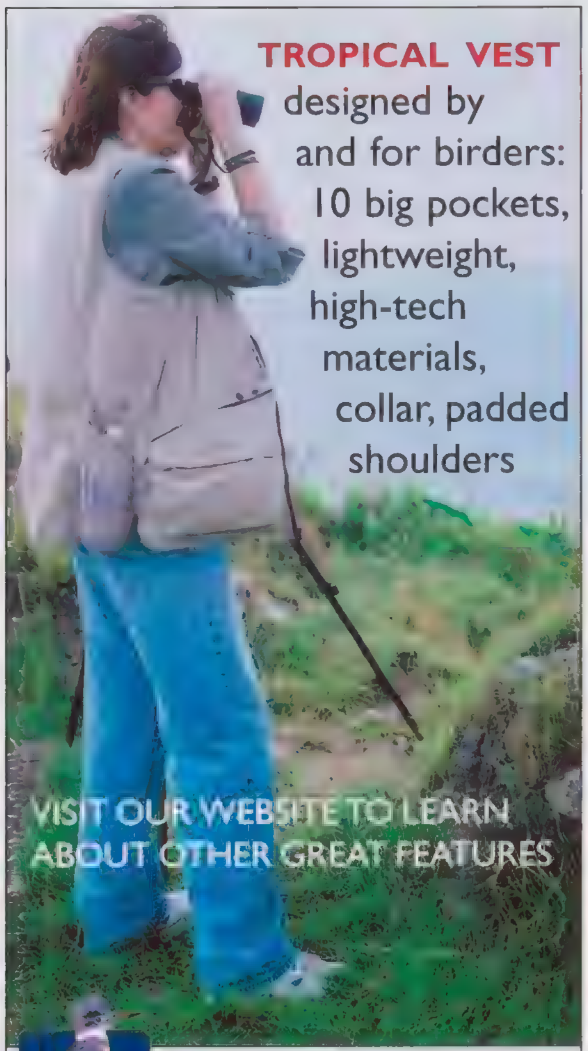

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YULA KAPETANAKOS

# Vanishing Vultures

Driving through Cambodia's northern territories I am struck by the persistent patina of brick-red color draping the landscape: stretches of broad-leafed vegetation punctuated by modest wooden homes; lines of freshly washed laundry fluttering in the dry air; women wearing traditional kroma head scarves, one corner drawn over their mouths as they walk along the road. All seem to blend into a single hue as passing vehicles stir up momentary dust storms that rise tempestuously then settle quietly on everything in their path. These unpaved roads signal Cambodia's continuing struggle to recover its infrastructure from 30 years of social and political upheaval. Yet, they led our team to one of Cambodia's natural treasures in search of two of the world's most endangered birds.

Cambodia boasts a large portion of Southeast Asia's Central Indochina Dry Forest, home to one of the most diverse assemblages of dry-forest species, including the subjects of our research: Slender-billed (*Gyps tenuirostris*) and White-rumped vultures (*Gyps bengalensis*).

The forest's topography is dominated by deciduous dipterocarp species, a valuable hardwood that has been over-harvested throughout most of Asia. A dense understory of bamboo and other grasses is characteristic of these forests, making them similar in appearance to the savannahs of Africa. Domestic livestock are now the primary grazers of these grassy forests, but it is easy to imagine the large herds of wild water buffalo, bantang, gaur, and koupray that were once abundant here. These and many other species have become casualties of accelerated deforestation, hunting, and the decades of civil war and political upheaval that have left this land littered with forgotten landmines. As a result, research biologists have only been able to reenter the country safely during the last decade. They are finding that despite years of chaos and environmental neglect, Cambodia's remaining forests still contain a rich diversity of life.

In 2007, researchers located a rare colony of Slender-billed Vultures in eastern Cambodia. It is the only known colony of this species in Southeast Asia. White-rumped Vultures also breed in the vicinity. Both species, which once numbered in the millions, now hover at the verge of extinction. Their global conservation status has only recently changed to "critically endangered" as a result of events that unfolded a great distance from Cambodia's forests.

*Asian vulture numbers have crashed in recent years as a consequence of the birds eating diclofenac-contamined carcasses.*

The rapid demise of these large soaring scavengers has been attributed to a single source—the veterinary use of diclofenac, an anti-inflammatory drug used predominantly to treat livestock on the Indian subcontinent. Residues of this drug remain in treated animals after they have died, producing dire consequences for vultures. Diclofenac is extremely toxic to Gyps vulture species, causing kidney failure within days after the birds feed on a tainted carcass. Because vultures typically feed in large groups, one carcass can affect dozens of birds at once.

Diclofenac's impact on South Asian vulture populations has been devastating; populations of White-rumped and Slender-billed vultures have plunged to 5 percent of their former abundance. The declines of these two species in South Asia have made conservation of Cambodian vulture populations much more crucial, because they may now represent their largest remaining populations.

In response to this decline, a collaborative effort by the Wildlife Conservation Society, Birdlife International, World Wildlife Fund, Royal Society for the Protection

# *The View from Sapsucker Woods*

*"Given the many urgent scientific and technological challenges facing America and the rest of the world, the increasing need for accurate scientific information in political decision making, and the vital role scientific innovation plays in spurring economic growth and competitiveness, we, the undersigned, call for a public debate in which the U.S. presidential candidates share their views on the issues of the environment, medicine and health, and science and technology policy."*

*—See www.sciencedebate2008.com*

Recently I joined a growing throng of citizens, scientists, and public leaders in signing a citizens' initiative calling for this year's major presidential candidates to discuss their views on scientific issues and science policy in a debate-style forum. The initiative, dubbed Science Debate 2008, does not ask that candidates pass a high-profile "science quiz," but rather that they answer a series of questions chosen by a nonpartisan panel of experts, from thousands of questions submitted by citizens. The initiative is cosponsored by the American Association for the Advancement of Science, National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and even the Council on Competitiveness. More than 150 leading American universities and not-for-profit organizations have signed on, with more joining the ranks every day.

I am heartened by this groundswell of expectation that our country's leaders must be versed in the crucial importance of science and how to discuss it. Science should not be viewed as the purview of specialists. It is really nothing more than organized curiosity about what our world and universe are made of, how they work, and what we humans can create with the raw materials. Our understanding of such matters will always be incomplete, but from Aristotle and Copernicus to Darwin and Einstein, human understanding (and the quality of our lives) has marched forward via the simple ingredients of careful observation, inquiry, experimentation, logical deduction, inference, and follow-up observation. Maintaining a willingness to be "surprised by the facts" and even to be proven wrong is a hallmark of the scientific approach. Such an attitude does not require specialized training but simply an appreciation of our unique privilege to be forever curious and to have our questions answered and progressively refined through fact, reason, and trial and error.

I appreciate that faith, myth, blind optimism, and even (I suppose) partisan politics also play crucial roles in human culture. Properly applied, these and other social and spiritual expressions inform many of our ethical choices, including aspects of science policy. But should we not demand leaders who articulate the lost opportunities and grave dangers that befall societies that fail to embrace rational, evidence-based decision-making as an essential route to advancement? Should we not demand that research and science education become bedrock national priorities? History provides copious evidence of their value. Most of the world's gross national products today are made up of goods and services developed through scientific innovation and discovery. Conversely, failure to heed warnings about ecological consequences from human activities has time and again resulted in large-scale calamities that were otherwise avoidable.

It is no exaggeration to declare that the future of life on earth—not to mention the quality of human existence within it—hangs on the balance of decisions and behaviors executed by humans during the coming decade. How we control emissions, such as carbon, mercury, and sulphur, and how we invest in alternative, non-polluting energy sources will profoundly influence global climates for centuries. Besides energy-related issues, we need comprehensive national policies on science education, stem cell research, pandemic diseases, fisheries and ocean management, freshwater supplies, endangered species recovery, and health care, to name just a few major issues that face our next president.

The short-term goal of Science Debate 2008 is to help voters measure how each candidate understands the role of science and approaches the challenge of making informed decisions. The long-term goal should be to highlight the crucial role of science and science literacy to our future as a happy and competitively successful society living in harmony with a healthy natural world.

*John Fitzpatrick*
*Louis Agassiz Fuertes Director*

JON REIS

TIM GALLAGHER

*Lab director John Fitzpatrick (left) and film maker George Butler in the swamps of Arkansas.*

## Lord God, What a Film

It has mystery, intrigue, memorable characters, and haunting landscapes—in other words, it's a rip-roaring good story. The saga of the Ivory-billed Woodpecker is now a major documentary film titled "The Lord God Bird" and will soon be appearing in movie theaters across the land.

The film, still a work in progress, was previewed at the DC Environmental Film Festival in the nation's capital on March 14, 2008, and drew a full audience to the National Geographic Society's Grosvenor Hall. Although George Butler—the award-winning director and producer of the film—was in India and could not attend, Caroline Alexander, the film's writer; Bob Nixon, producer; Kyle Abernathy of the National Geographic Society; and Tim Gallagher and Ron Rohrbaugh of the Lab of Ornithology took part in a panel discussion at the end of the screening, answering questions from an enthusiastic audience.

In the course of making this film, Butler and his White Mountain Films crew spent two years exploring the swamps and forests of the southeastern United States, talking to hunters, ornithologists, birders, and ivory-bill seekers of all sorts. Butler says he is drawn to stories with strong characters, and one of the strongest characters in this film may be the ivory-bill itself—the focus of intense passion for people on both sides of the extinction debate.

Butler is not out to convince anyone of the ivory-bill's existence. "This film presents the audience with a wide range of information on the ivory-bill. There's plenty of evidence for believers *and* skeptics," he says. "I hope the film will stimulate tremendous arguments outside the theaters." Personally, Butler admits to being "buffaloed" by the debate, saying he's interviewed many credible people with opposing opinions.

"The Lord God Bird" stitches past and present together with commentary from people who have been part of the ivory-bill story or been touched by it. The film's cast of characters includes Lab of Ornithology director John Fitzpatrick and *Living Bird* editor-in-chief Tim Gallagher. In February 2004, Gallagher and his friend Bobby Harrison were following up on ivory-bill sightings across the South when they saw one of these iconic birds in eastern Arkansas. The sighting launched a massive search that is still in progress.

Fitzpatrick says, "I hope people leave the theater saying 'We can't make those mistakes again. We need to stand in the way of extinctions, not foster them.' I hope it gives people a real sense of the beauty of the southern forests and the need to bring them back, for ourselves and all the creatures that live there."

*— Pat Leonard*

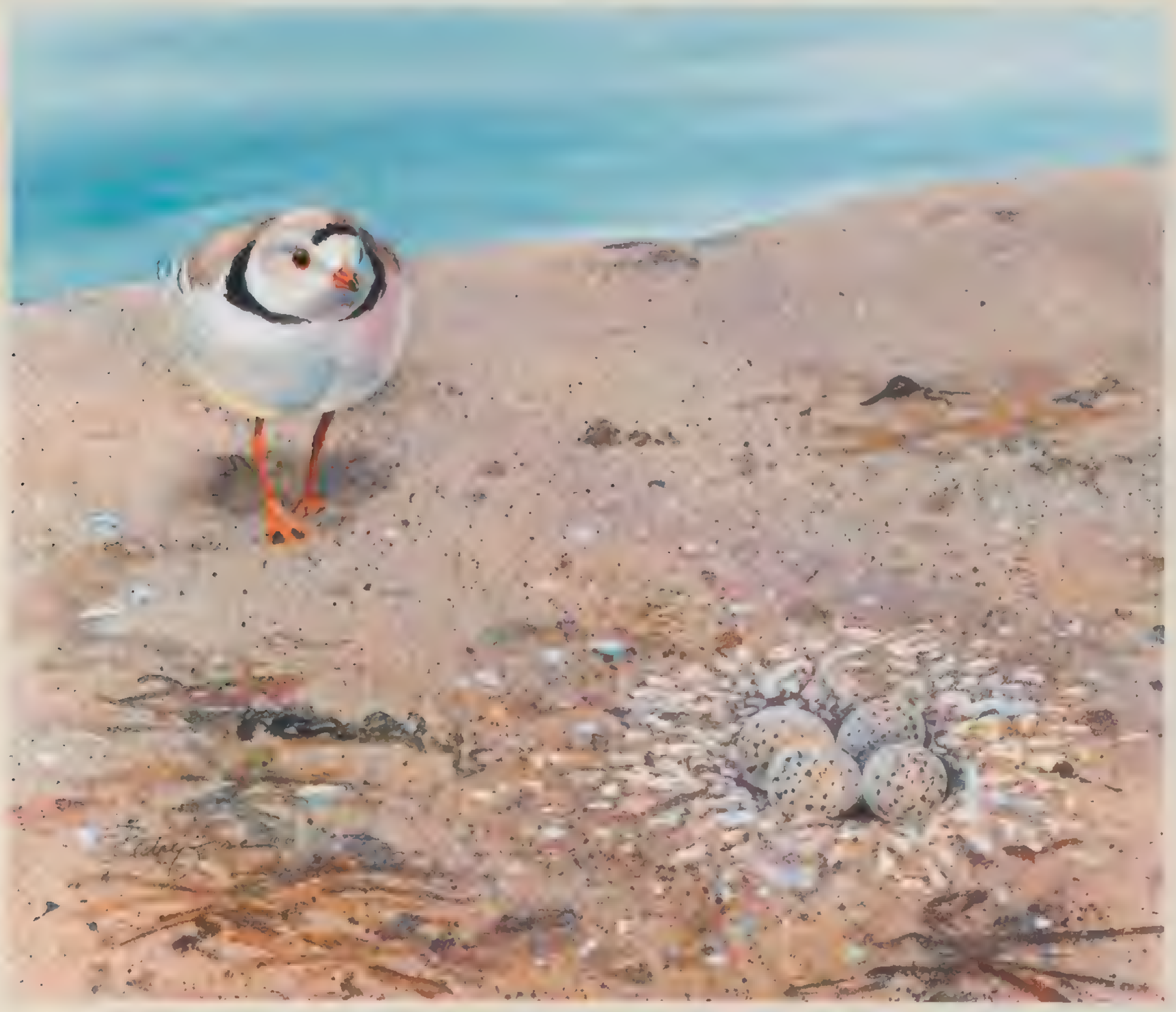
of Birds, and Cambodia's Department of Nature Conservation and Protection and Forestry Administration is in progress to monitor vulture populations in protected areas in northern and eastern Cambodia. The Lab of Ornithology's Fuller Evolutionary Biology program joined these efforts this year and is now using the latest genetic techniques to investigate questions on avian biology—in this case, vulture demographics.

Most conservation efforts begin by asking one fundamental question: How many individuals exist within a population? At this time, we don't know how many vultures live in Cambodia. Researchers continue to count birds at designated feeding stations, but gathering accurate bird census data from afar can be a difficult feat. The Lab of Ornithology is helping in this effort by analyzing vulture feathers gathered at these feeding stations. Through their bickering and jostling for prime feeding spots, vultures often lose feathers, from which we can extract DNA that describes an individual's unique genetic make-up. Analyzing large numbers of these feathers is a noninvasive process that more accurately estimates population size.

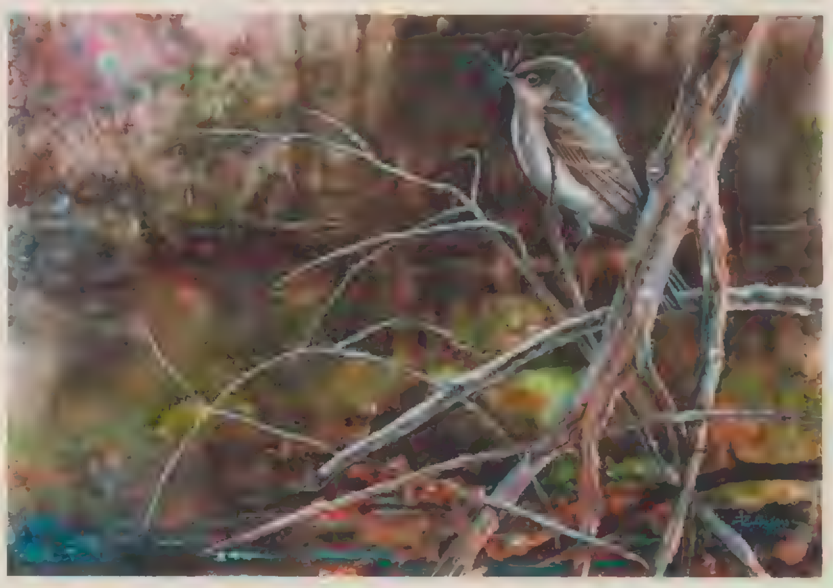
But many questions remain. We are still in the early stages of understanding the vultures' migration patterns, which often extend over thousands of miles. We need more data. One way to obtain it is by attaching satellite transmitters to the birds. These tiny devices have been used successfully to track vultures, and they are now better than ever. Improvements in solar power have extended the transmitters' longevity, and GPS technology has made them more accurate. Tracking these birds can alert us if they migrate to hazardous destinations.

An unfortunate conundrum exists in endangered species research. The urgency of our need to understand and protect critically endangered animals sometimes runs counter to the needs of good science: time and resources. It's a frustrating reality of our work but a challenge well worth undertaking, considering the alternative. If we fail, the brick-red roads of Cambodia will no longer lead us to a habitat where the broad-winged silhouettes of vultures shadow the skies.

*—Yula Kapetanakos*



*Julie Zickefoose's watercolors of a Piping Plover (above) and an Eastern Phoebe (at right) are two examples of her artwork that will be on display at the Cornell Lab of Ornithology through July 7, 2008.*

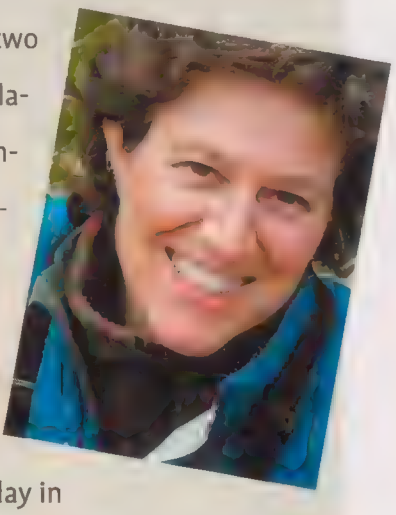


SHILA WILSON

## Watercolors from Eden

We were pleased to welcome famed artist and nature writer Julie Zickefoose to the Lab of Ornithology this past April 7 for a Monday-night seminar. The talk kicked off a three-month exhibition of illustrations from her latest book, *Letters from Eden: a Year at Home in the Woods.* Arranged according to the seasons, the book is an evocative collection of nature essays, watercolors, and pencil sketches inspired by the life she leads on the 80-acre piece of paradise she shares with her husband and two children in the Appalachian woods of southeast Ohio. The exhibition, which includes many of my favorite watercolors and sketches from the book, will be on display in the Lab of Ornithology's auditorium gallery through July 7, 2008. We hope you can take time to visit.

*— Tim Gallagher*



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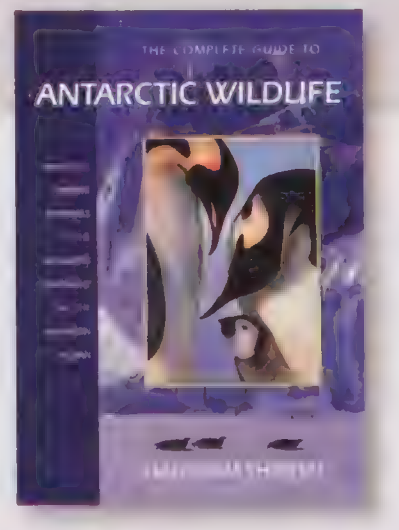

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## Ancient Hummingbirds in Surprising Places

All 335 living species of hummingbirds are found exclusively in the Americas. These birds astounded and fascinated the adventurous European naturalists who first encountered them zipping about in the tropics. Ever since, the logical assumption has been that this family of tiny, hovering birds originally evolved in the New World. It therefore came as a great surprise when in 2003 a fossil-bird expert named Gerald Mayr recognized that several 30-million-year-old remains from a site in southern Germany were actually fossil hummingbirds. Mayr carefully described those hummingbird fossils, clearly documenting that hummingbirds occurred in the Old World during the early part of their evolutionary history.

Mayr's specimens were clearly hummingbirds—features of their bone structure showed that they could rotate their wings to hover, and their elongated bills even suggested that they fed on flowers. However, these first-known European hummingbirds differed from all present-day hummingbirds in various details of their anatomy, suggesting that they were an early precursor on the hummingbird evolutionary tree.

A spectacular new hummingbird specimen from the same early period was recently unearthed in southern France and described by a team of paleontologists. The skeleton of the new hummingbird fossil is nearly complete, and the rock matrix around the bones even reveals the outline of the bird's feathers, making it easily possible to discern the shapes of this ancient hummingbird's wings and tail.

The new hummingbird is more similar to modern hummingbirds than were the fossils discovered earlier by Mayr, providing even stronger evidence that important aspects of hummingbird evolution may have occurred outside the Americas. Mayr and his French colleagues point out that the presence of ancient hummingbirds in what is now Europe does more than provide a radically new perspective on our ideas of where and when these birds evolved: hummingbirds often co-evolve with the plants they feed on, and it is now plausible that some modern plants in Europe and Asia retain attributes that stem from the time when they were pollinated by ancient hummingbirds.

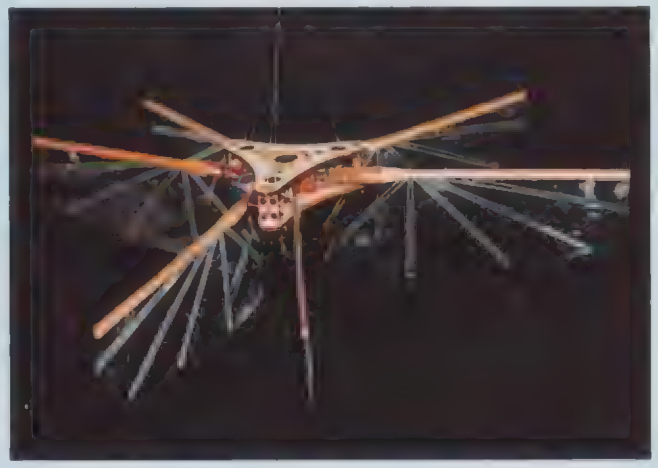
*—Irby Lovette*

Louchart, A., N. Tourment, J. Carrier, T. Roux, and C. Mourer-Chauviré. 2008. Hummingbird with modern feathering: an exceptionally well-preserved Oligocene fossil from southern France. *Naturwissenschaften* 95: 171–175.

## *A Hummingbird-inspired Flying Machine*

Flapping flying machines have captured the imagination of inventors since Leonardo da Vinci, but reproducing the remarkable abilities of insects and birds remains a difficult feat of engineering. In designing a new type of autonomous flying vehicle, Cornell Presidential Research Scholar Floris van Breugel and his collaborators Professor Hod Lipson and William Regan of the Cornell Computational Synthesis Lab sought inspiration in the rapid back-and-forth wing-beats of hummingbirds and insects.

In a forthcoming paper, van Breugel reports on his team's successful design, construction, and flight-testing of a flapping, hovering flying microvehicle. Their beautiful but tiny machine is surrounded by four pairs of sail-shaped gossamer wings, each attached to a motor that powers its oscillating motion. As each pair of wings claps together and then flings apart, they create a low-pressure air pocket that aids in the production of leading-edge vortices. Such vortices, among other complex aerodynamic effects, are the primary mechanisms used by insects and hummingbirds to stay aloft.



This machine operates in the same aerodynamic way as hummingbirds and larger insects. It is unique in that it is the first such device that can carry its own batteries and motors and at the same time be passively stable, requiring no remote control to stay aloft: whatever orientation the machine is in when it is released to fly, it automatically flips right-side-up and rises into the air.

Perhaps not surprisingly, birds have been a direct influence on van Breugel's passion for engineering: he is an avid bird watcher and a skilled nature photographer. Van Breugel's picture of an Anna's Hummingbird on the opposite page is one of his favorite shots.

Visit www.livingbird.org to view a video of van Breugel's flying machine in action and to see more of his photographs of the birds that inspired this work. *—Irby Lovette*

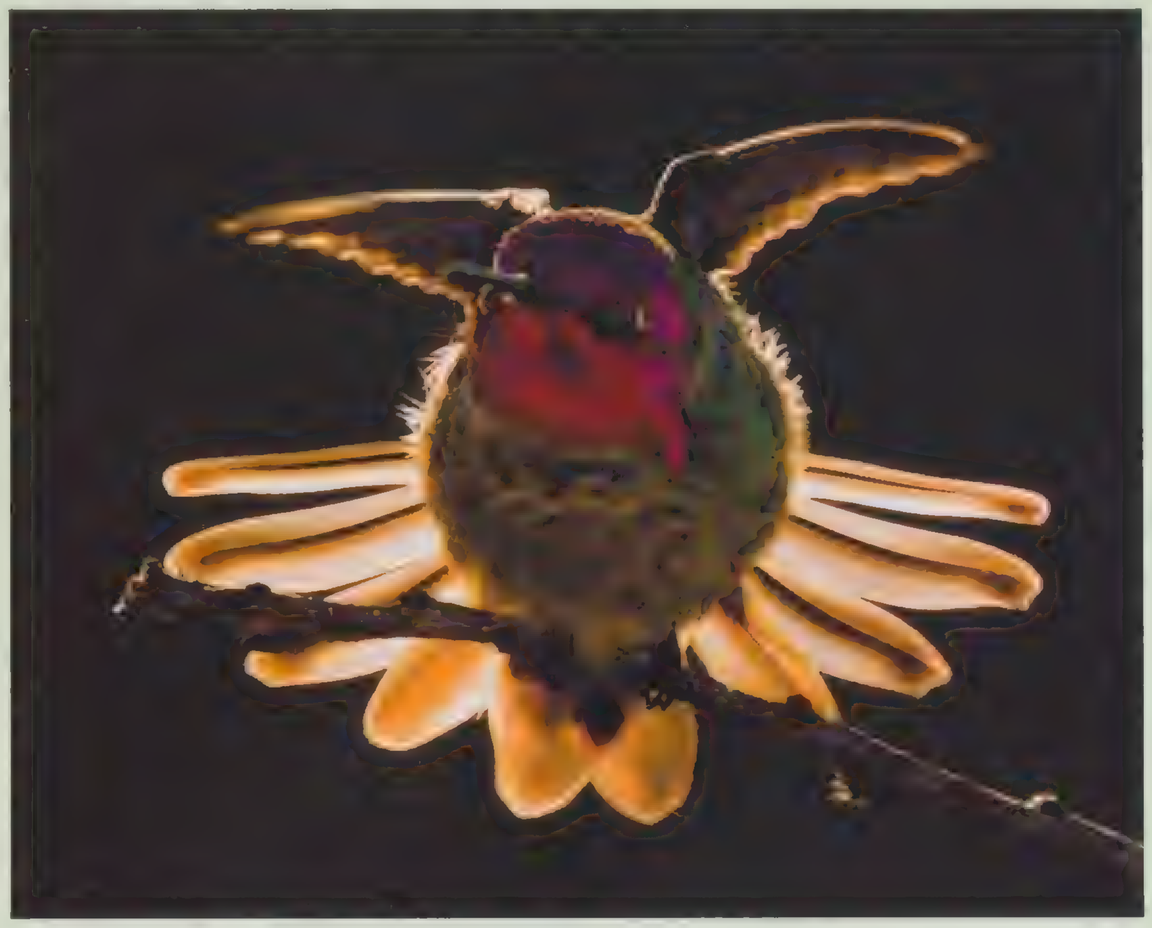
van Breugel, F., W. Regan, and H. Lipson. 2008. *IEEE Robotics and Automation Magazine* [in press, volume and page numbers unavailable at press time].

FLORIS VAN BREUGEL (2)

# *The Mysterious Squeak of the Anna's Hummingbird*

Many birds produce mechanical sounds—familiar examples include the low-pitched booms of a drumming Ruffed Grouse and the twittering sounds made by the wings of American Woodcocks during their springtime display flights. These nonvocal sounds are termed "sonations," a neologism coined by Cornell scientist Kim Bostwick to distinguish birds' mechanical sounds from the more ubiquitous forms of song that birds make using their vocal tracts.

Birds have such astounding abilities to produce sounds vocally that it is often hard to prove that one is producing a particular sound some other way. One long-standing acoustic mystery involves the high-pitched squeak that male Anna's Hummingbirds emit during the last part of their aerial diving display. This squeak resembles part of the vocal song these hummingbirds sing when perched, but it is much louder. Since the 1940s, ornithologists have debated whether this squeak is simply a louder version of the species' regular vocal song or a different sound produced by some unknown mechanical structure.



The mystery of the hummingbird squeak has now been solved by two students from the University of California. Using ultra-high-speed video cameras, they first filmed and recorded several wild Anna's Hummingbirds performing their dive display. When they looked at and listened closely to their tapes, the researchers discovered that the squeak was only made during the later part of the dive, coincident with the hummingbird suddenly spreading its tail. This finding focused their attention on the hummingbird's tail feathers.

As you can see in the photograph, the outermost tail feathers of Anna's Hummingbirds are shaped differently from the feathers in the interior part of the tail. By temporarily manipulating the outermost tail feathers on a series of wild hummingbirds, these researchers were able to show that the birds with modified feathers were no longer able to make the squeak sound during their dive display. In a final confirmation, they also showed that a similar tone could be generated artificially in the laboratory by blowing an intense air stream over a single outer tail feather.

How is the squeak sound produced by a hummingbird tail feather? When the bird opens its tail during a dive, the rear (trailing) part of the feather vane encounters high air turbulence, which causes it to flutter at its resonant frequency, thereby producing the squeak. This mechanical sound production is akin to the much lower tone produced by a flag fluttering extremely rapidly in a very strong wind, or (in a somewhat less technically analogous way) to the vibrations of a reed in a wind instrument.

Related species of hummingbirds produce a variety of different sounds during their display dives. It seems likely that most, if not all, of these hummingbird sonations are produced by these birds' equally impressive variety of tail feather shapes, each tuned to its own species' unique squeak tone.

*—Irby Lovette*

Clark, C. J., and T. J. Feo. 2008. The Anna's hummingbird chirps with its tail: a new mechanism of sonation in birds. *Proceeding of the Royal Society of London* B 275: 955-962.

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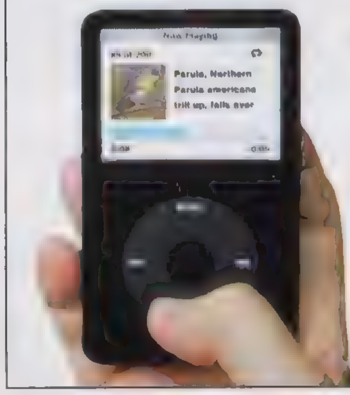

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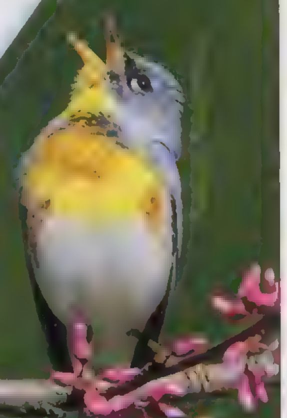

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# Ten Times and Counting

### *by Mel White*

## *The continuing appeal of southeastern Arizona*

Let's say you take a birding trip to Upper Mongalute. While there you meet a friendly local who provides lots of good advice, and in fact helps you find the rare and endemic Lesser Upper Mongalutian Ditch-Babbler—though you're unable to search for the Greater owing to a strike by disgruntled sampan captains.

Now your friend is planning a trip to the United States and writes to ask for advice. He or she is not a person of wealth, depending for income on the volatile worldwide market price of cattail fluff, Upper Mongalute's only export crop. This is a one-time-only visit, with no money for jetting around our vast country. What single place, your foreign friend asks, should I visit?

Why, eastern Texas, of course. Fly Air Mongalute to Houston, rent a car, drive down the Gulf Coast to the Rio Grande Valley, make a swing back through the Hill Country, and there you have it: our best birding. California may have marginally more species than Texas on its state list, but who would wish its freeways on any visitor? Especially an Upper Mongalutian, to whom two yaks in a pack constitutes a traffic jam.

And yet . . . and yet many of us, asked to pick our favorite birding area in the United States, would choose not eastern Texas but southeastern Arizona. The Texas coast and the Rio Grande Valley are great for birds, but—how can I put this delicately?—they're ugly. Oh, sure, you can find pockets of prettiness here and there: a deserted Padre Island beach, say, or the semitropical forest of Santa Ana National Wildlife Refuge. But the birding sites are set in relentlessly flat terrain, separated by undistinguished stretches of highway and suburbanization.

Southeastern Arizona, on the other hand, would be beautiful even if Elegant Trogons weren't lurking in every other canyon and a dozen hummingbird species weren't buzzing feeders. It's the kind of beauty that pays off for birders, with low deserts and 9,000-foot mountains and all the life zones in between. It's wonderful to experience the sights and sounds and smells of the Sonoran Desert at dawn, but it's even more wonderful to be able to escape to a pine-fir forest for lunch.

When I was six, crazy about birds and to a lesser extent—say, only slightly deranged—about lizards and snakes, my family drove 1,000 miles west to visit relatives in Tucson. The transition from eastern deciduous forest to mesquite and then to barren rock, seen through the windshield each day, made a big impression on me. So did the saguaro desert (could the surface of Mars be any more exotic?) and the horned lizard I temporarily corralled on the grounds of San Xavier del Bac Mission (who wants to look at an old church when critters like this are around?).

My eyes opened widest, though, for a male Western Tanager, a sight that confirmed once and for all that birds were just the coolest things on earth. The trip served as a kind of entry point for infection, for the chronic feverish conviction that travel, and especially travel to see birds and experience new environments, is one of life's greatest pleasures and rewards.

And, of course, it hooked me on southeastern Arizona. It was 16 years before I went back, and this time I knew a little more—i.e., about half of what, at the age of 22, I thought I knew. I was visiting a friend who had temporarily moved to Phoenix, but I made time for Papago Park, South Mountain Park, Tonto National Forest, the Arizona-Sonora Desert Museum, and a quick trip up the Catalina Highway to the top of Mount Lemmon. I had to buy the Robbins *Birds of North America* to supplement the eastern Peterson field guide I'd had since my toddler days, because this was my first real birding trip out West. I barely skimmed the surface of the avifauna, but at the time it seemed that a treasure chest had opened, releasing birds such as Phainopepla, Lawrence's Goldfinch, Abert's Towhee, Yellow-eyed Junco, White-throated Swift—even Common Raven was a new and thrilling addition to my list.

Nine subsequent visits (until I looked at my records, I didn't realize I'd been back so many times) have by now taken me to most of the regional hot spots. As time passed, I was looking for specialized species in the more obscure places, as opposed to the cornucopia of lifers I got from my first visits to the top of the Chiricahua Mountains and Patagonia-Sonoita Creek Preserve. But the attraction of a place has to be based on more than just adding species to a list; the rule of diminishing returns takes care of that. I think there are quantifiable reasons, not just personal whim, why southeastern Arizona ranks as my favorite.

It's big enough, but it's not too big. At about 140 by 75 miles, southeastern Arizona is a lot more manageable than the Texas Gulf Coast and the Rio Grande Valley, yet there's plenty of diversity here to fill a week-long birding vacation. This is true whether you take time for long hikes

TOM VEZO

*"There's really no place like the Sonoran Desert. Maybe it's not Mars, but there's an almost otherworldly feeling about walking among giant saguaros, especially in places where vast stands climb from lowlands to wrap around foothills."*

in beautiful places like Madera Canyon or you zip around in a car from one boldfaced highlight site to the next. In the latter case, quick drives link dozens of excellent spots, and even the extremes of the region aren't too far apart. To call up one memory: you can see Five-striped Sparrow at California Gulch in the morning, be at a motel in Green Valley in the afternoon, hear about an out-of-season Costa's Hummingbird at Portal, and make it over there before dark—and get two Calliope Hummingbirds in the deal, too.

It's popular, but it's not too popular. Part of the fun of birding is meeting and exchanging sighting news with other birders on trails, in visitor centers, or in restaurants. This happens in southeastern Arizona, but you rarely get the feeling you're standing in line for a ride at Disney World. (I make an exception here for the chairs set up in the yard at the wonderful Paton house in Patagonia, where so many people have seen their first Violet-crowned Hummingbird, and where I saw my first Western Screech-Owl, peeking out of a hole in a tree.)

Once I was on a trail at Madera Canyon when an accipiter zoomed past. Out of nowhere—actually from around a bend in the path—I heard a voice ask, "Was that a sharpie or a Cooper's?" I had no idea, but the voice belonged to a hot-shot visiting birder who knew the area far better than I did, and who pointed me (and in a couple of cases guided me) to my first Arizona Woodpecker and Cassin's and Rufous-winged sparrows.

I've had that too-crowded, High-Island-on-a-spring-weekend or Santa-Ana-in-March experience only once in Arizona. One August a group of us went to the Beatty's Miller Canyon Guest Ranch in the Huachuca Mountains to check the renowned hummingbird feeders. Unbeknownst to us, the state's first Short-tailed Hawk had just been reported from Miller Canyon; you can imagine the resulting scene. We saw great hummers (White-eared and Lucifer!) and, boy, did we meet some famous birders.

It's unique. Yes, all of America's natural divisions and ecosystems have distinctive features, but admit it: there's really no place like the Sonoran Desert. Maybe it's not Mars, but there's an almost otherworldly feeling about walking among giant saguaros, especially in places where vast stands climb from lowlands to wrap around foothills, as they do at Saguaro National Park's Rincon Mountain District east of Tucson.

You can take a day trip from desert to conifer forest in California, but southeastern Arizona has something else to set it apart: the summer storms locally called monsoons. Two distinct rainy seasons, one in winter and another in July and August, have created seasonal adaptations in some bird species. The beautiful Montezuma Quail forms pairs in late winter but delays nesting to take advantage of more

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abundant food after the monsoons, which also stimulate singing and nesting of Five-striped, Cassin's, and Rufous-winged sparrows. A large part of the population of the sought-after Elegant Trogon waits to nest until June and July, as do Sulphur-bellied Flycatchers, among other local breeders. This means that midsummer, a slow birding time in much of the country, is a good time to visit southeastern Arizona's desert.

The monsoons that create this seeming paradox have to be seen to be believed. Frightening in their intensity, they materialize out of night-dark clouds that suddenly appear and pour a fantastic amount of rain, like someone turned on a giant showerhead in the sky. They disappear just as fast, leaving blue sky as if nothing had happened.

I did mention, didn't I, that it's beautiful in southeastern Arizona? Admittedly, this assertion comes with an asterisk and a disclaimer: your experience may vary if you don't share my belief that the desert is a lovely place—not just the saguaro stands but the scrub flats covered in ocotillo, acacia, creosotebush, palo verde, and other cacti such as cholla and prickly pear. If that's the case, just move on to the grassland of Buenos Aires National Wildlife Refuge, the riparian canyons of the Huachuca Mountains, or the forests of pine, Douglas-fir, spruce, aspen, and oak in the Chiricahuas, where Mexican Chickadees and Olive Warblers nest among bizarrely shaped volcanic rock formations.

Although southeastern Arizona has long been popular with birders, the region has lagged behind Texas in promoting itself as a wildlife-watching destination. "For Arizona, mainstream tourism means the Grand Canyon, golf, winter visitors, and spring training," Sheri Williamson of the Southeastern Arizona Bird Observatory (SABO) says. "They bring in such huge amounts of money that it's hard for birding to have its voice heard. And for a state where tourism is so important, Arizona really has an underfunded tourism agency."

It took several years of false starts, but public and private groups have developed a Southeastern Arizona Birding Trail and accompanying map, available locally and from SABO. (The observatory's web site, www.sabo.org, offers excellent birding advice for the region, as well as its own clickable map of birding spots.) Williamson says that, with birders' low profiles as travelers, it's hard to say whether birding tourism is increasing in the area.

"What I do see is that new sites that have recently come onto the birders' radar are getting higher and higher visitation," she says. "It's not that you can get bored visiting places like Madera Canyon, the San Pedro River, or Cave Creek Canyon over and over again. It's that when people hear about a new place, that instantly sparks their imagination.

"From a bird standpoint we haven't leveled out. We've got new stuff all the time, and we've had more and more interesting birds showing up throughout the year. There's been a Crescent-chested Warbler, Aztec Thrush, and Eared Quetzal at Madera Canyon this winter. Talk about your embarrassment of riches. We expect that kind of thing in August, but we don't expect it in January."

Originally from Texas, Williamson admits that the Gulf Coast and the Rio Grande Valley still place high on any birder's wish list of destinations. But she's a complete convert to her adopted home.

"This area just has so much, it's so diverse, that even with my living here and going to the same places all the time, it's hard for me to contemplate being away during those spectacular times of the year: late April and early May, anytime in August and early September, and even in the middle of winter with the Sandhill Cranes and the birds of prey.

"As much as I enjoy birding elsewhere, this place really is addictive. It's hard to think about leaving home when you have so much right out your back door. I hate missing even a day here."

All things considered—and despite my personal bias—I'd probably still recommend that your Upper Mongalutian friend choose the Texas coast for that hypothetical one-and-only birding trip to North America. But it wouldn't hurt to check and see if Air Mongalute has any special fares to Tucson, too. ◆

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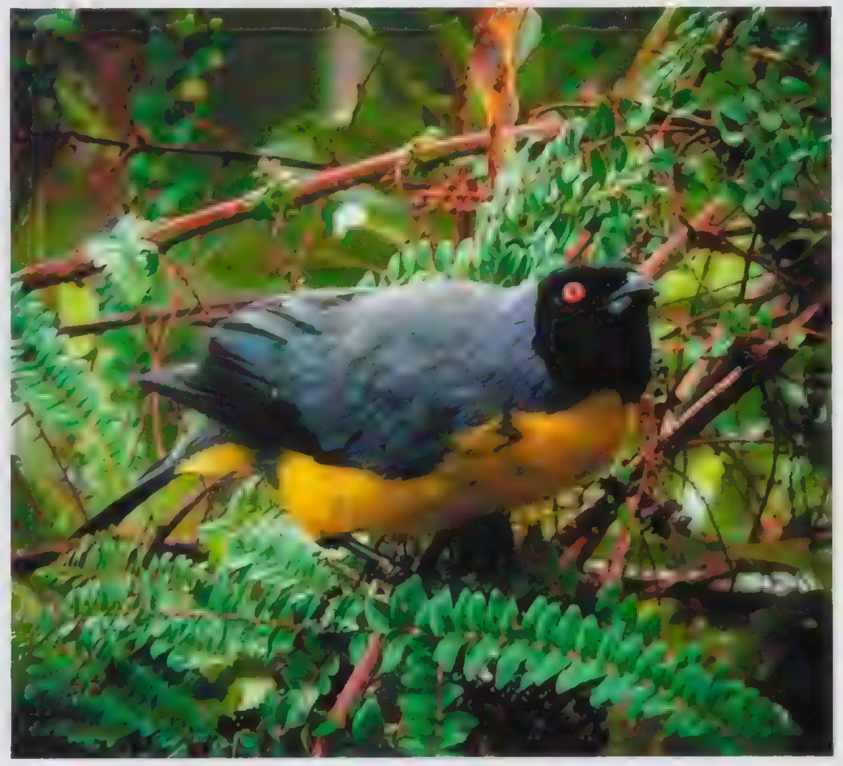
# BIRDING THE NORTHERN ROUTE

TIM GALLAGHER

by Tim Gallagher

## *Searching for rarities in the highlands of Peru*

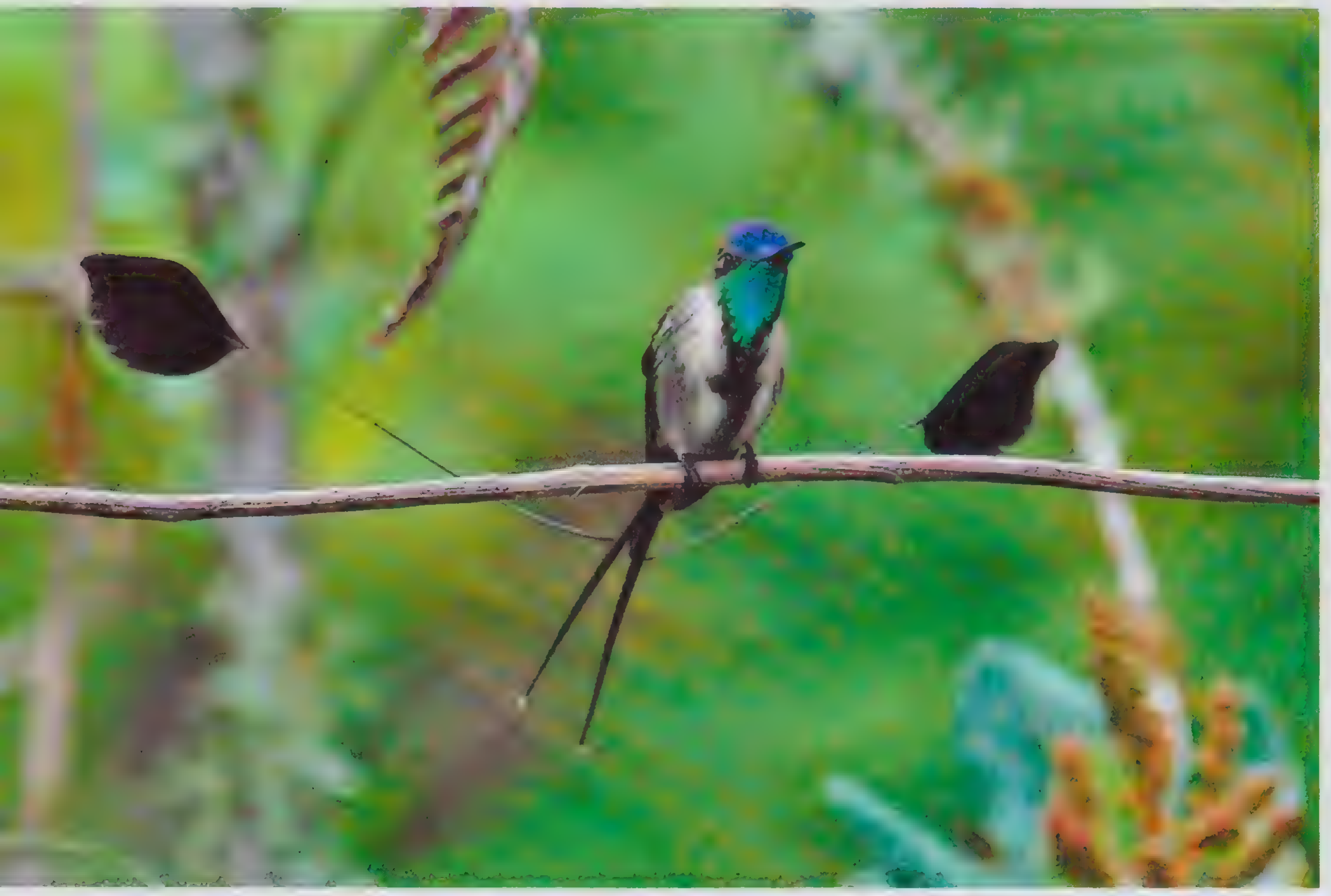
Peru is a magical place—especially for birders. Boasting more than 1,800 species, it holds one-fifth of the world's avifauna, a staggering amount for a single country. Last fall I was invited to take part in a tour of Peru's northern birding route through the Andes, followed by a nature fair. The trip was set up by the national tourism bureau, PromPeru, to promote ecotourism in a part of the country that receives far fewer visitors than the popular Inca ruins of Machu Picchu and Cuzco to the south. The group invited journalists, prominent birders, and representatives from tour companies.



GARY ROSENBERG

*A tributary of the Amazon, the Marañón River (left) is the great divide in this part of the Andes. Above, the Hooded Mountain-Tanager is a stunningly beautiful endemic.*

One of the high points of the trip came one morning when we hiked through a thick mist up into the hills to look for the Marvelous Spatuletail—easily one of the world's most spectacular hummingbirds.



ROGER AHLMAN

Of course, I jumped at the chance to visit Peru. It has been a dream destination of mine for years—for the birds, most of which I'd never seen before, but also for Peru's rich history in ornithology. It was there that many of the most prominent ornithologists in the United States cut their teeth: people like John O'Neill of Louisiana State University; John Fitzpatrick, director of the Lab of Ornithology; and the legendary Ted Parker.

This would be a lightning-fast tour, five full days of hard-driving birding on a route most people take two or three weeks to cover. Still, I knew it would be well worth it. This was my first trip to South America, and almost every bird would be new to me. But the best part was that our group would be traveling with John O'Neill and visiting some of the very places where he had discovered new species of birds.

Most of the tour members arrived in Lima late on a Sunday night in September. I ran into our guide, Barry Walker, at the airport. Originally from Manchester, Walker is an expatriate Englishman who has lived in Peru for decades. Author of *A Field Guide to the Birds of Machu Picchu and the Cuzco Area* and *Peruvian Wildlife: A Visitor's Guide to the High Andes,* Barry knows the area intimately and is a popular birding guide and owner of Manu Expeditions. He is also the British consul in Cuzco. But clad in baggy cargo pants with a sludge-colored birding vest and a sweat-stained leather hat, Walker seems more akin to Crocodile Dundee than to the stereotypical straitlaced British diplomat. His gregarious good humor and enthusiasm were infectious, and in the days ahead we willingly followed him through rugged mountains, parched desert habitats, and misty rainforests to look for birds.

We arose before dawn the next morning and made our way back to the Lima airport to fly to Cajamarca, a city of about 120,000 residents, situated nearly 9,000 feet up on the western slope of the Andes. Although it is only an hour's flight from the teeming streets of downtown Lima to the sleepy colonial city of Cajamarca, it seems worlds away—so remote and rural, surrounded by agriculture. Somewhat off the beaten path as a tourist destination, the town nonetheless has a fascinating history. It was here in 1531 that the Spanish conquistador Pizzaro captured Atahuallpa, the Inca Emperor. The Emperor had been enjoying the famed hotsprings at Cajamarca when the Spaniards arrived. Pizzaro invited Atahuallpa to attend a feast in his honor but then arranged an ambush, placing artillery strategically around Cajamarca's main town square. Atahuallpa accepted the offer. He had 60,000 Inca warriors in Cajamarca and felt he had nothing to fear from the Spanish, who numbered only a couple of hundred. When a Spanish friar sent by Pizzaro demanded that Atahuallpa accept Christianity and the rule of Emperor Charles V, the Inca Emperor flatly refused. Pizzaro's men subsequently opened fire with cannons, and then cavalrymen charged into the square, slashing the stunned Incas (who had never seen modern

TIM GALLAGHER

*We got off the bus in a tiny village in the Andes and hiked up the hills through the morning mist. Our target species: the Marvelous Spatuletail (left)—a bird that definitely lives up to its name.*

DAVID GEALE

In many ways, it was O'Neill who put Peru on the map birdwise. At the time he first visited the country in 1961, most people thought that the age of discovery in ornithology was long past.

weaponry) with sabers from horseback. The battle was a complete rout, leaving some 7,000 Incas dead and their Emperor imprisoned.

Atahuallpa spent months locked in a room in Cajamarca as gold and silver were brought by the ton to Pizarro from throughout the Inca Empire to pay for his ransom. In the end, he was not released. Atahuallpa was executed by the Spanish on August 29, 1533, thus effectively ending 300 years of Inca rule in the area.

The Inca Baths, where Atahuallpa was bathing when the Spanish arrived, still remain, as does the "Ransom Room" where the Emperor was held prisoner and the town square, now called the Plaza de Armas ("Square of Weapons"). The people in Cajamarca tend to dress colorfully, the women in longish baggy skirts, often with a blanket wrapped around their shoulders, and many wear sombreros de paja—the traditional straw hats with a high, flat top.

Before we officially embarked on our birding journey, we were feted at a local resort, where a sumptuous brunch was served as a boy and girl performed a traditional Spanish dance and a rider with a high-stepping dark-brown horse pranced past. But most of us were too busy trying to watch the birds in the garden—such as the stunning long-tailed hummingbirds called Green-tailed Trainbearers—to give the performers the attention they deserved.

I sat with John O'Neill and his wife Letty and talked with him about his nearly lifelong infatuation with Peru. He spoke in a mild Texas drawl and seemed easygoing and friendly. His story is fascinating. In many ways, it was O'Neill who put Peru on the map birdwise. At the time he first visited the country in 1961, right after his freshman year at the University of Oklahoma, most people thought that the age of discovery in ornithology was long past.

"Birds are . . . the best studied of any class in the animal kingdom," wrote Erwin Stresemann in 1951. "By now the number of bird species, and, for that matter, the number and distribution of the geographical races have been all but completely determined." Peru proved him wrong—with a little help from John O'Neill.

He returned to Peru many times after his initial trip. On his third visit, he was given several bird specimens that had been collected by Indians in the northern part of the country. One of them was a tanager unlike any he knew of, with a bright orange throat. The bird turned out not only to be a new species but a new genus as well—the Orange-throated Tanager (*Wetmorethraupis sterrhopteron*). So before he had even graduated from college, O'Neill had already described a bird that was previously unknown to science. And that was just the beginning. (To date, he has participated in describing 13 new species of birds and also finding many species that were not previously known to reside in Peru.)

Many more birders and ornithologists would follow in the late 1960s and '70s in what would become a new age of discovery for Peruvian birds. Ted Parker, who made his first trip to Peru with John O'Neill in the early 1970s, became forever hooked and spent the rest of his life studying South American birds. (Ted died tragically at the age of 40 in a 1993 plane crash while working on an aerial bird survey in Ecuador.) John Fitzpatrick spent his formative years as a scientist studying Peruvian birds in the 1970s and himself described seven species of birds that were then unknown to science (see sidebar on page 30). Other prominent researchers who did pioneering fieldwork in Peru include Thomas S. Schulenberg, Douglas F. Stotz, and Daniel F. Lane, all of whom were coauthors with O'Neill of the recently released field guide, *Birds of Peru;* Gary Graves of the Smithsonian Institution; and Kenneth V. Rosenberg of the Lab of Ornithology.

After lunch, we drove away in our tall, odd-looking red bus, heading eastward on a narrow dirt road. Paved roads would be a rarity for most of the rest of the trip. More often, the "highways" we traveled on were rough tracks cut along the sides of mountains, sometimes overlooking great chasms just inches from the bus's tires, and there were no guard rails or warning signs of any kind—except for the crosses and flowers people had put up in places where friends or relatives had gone over the edge. And the tall, narrow design of our bright red tour bus only added to the queasy sense of uneasiness we all felt in the pit of our stomachs. Still, this is what adventure travel is all about, and we were rewarded with spectacular vistas at every turn, especially later as the great Marañón Basin opened up before us, wider than the Grand Canyon.

A tributary of the Amazon, the Marañón River is the great divide in this area. Driving into the valley, you descend rapidly, dropping from 10,000 feet above sea level to fewer than 3,000 feet at the river, and then back up to 10,000 on the other side. The change in habitats is astounding, with damp misty cloud forests on the higher elevations and desert habitats with cactuses below, in the rain shadow of the mountains, looking almost like Arizona in places. Over the millennia, distinctive species of birds have evolved on both sides of the divide as well as in the valley below, resulting in a staggering number of endemics.

As we dropped down to the river, shortly before crossing to the other side on a bridge, our bus hit a large rock and blew out a back tire, with a great boom that echoed across the canyon. Fortunately, we had dual tires in back, so we were able to limp along for a few miles to a place where we could get the outer left tire changed. The stop wasn't wasted. We had a nice view of a Pearl Kite, which flew over the river, carrying a small prey item in its feet, and we also spotted a Peruvian Pigeon, an endemic species we had hoped to find.

One of the high points of the trip for me came one morning when we drove to Chachapoyas and hiked through a thick mist up into the hills to look for the Marvelous Spatuletail. To me, the spatuletail is easily the world's most spectacular hummingbird. The adult male has a glittering blue crown and an emerald green gorget, but most remarkable are the bird's two long, thin outer tail feathers tipped with large feathered racket shapes that sway in the breeze—the better to impress females. The species is a rare endemic, and we all desperately wanted to see one. We set ourselves up on a hillside overlooking an area of dense shrubbery that the birds were known to frequent, and trained our spotting scopes and binoculars on likely looking flowers. A beautiful vista opened up before us as the morning warmed up and the mist began to dissipate. Although we had to wait quite a while, we all got

*John O'Neill discusses a bird identification with some birders who are perusing a copy of* Birds of Peru, *the new field guide he co-authored. The Long-whiskered Owlet (on facing page) was unknown to science when O'Neill trapped one in 1977.*

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TIM GALLAGHER

The "highways" we traveled on were often rough tracks cut along the sides of mountains, sometimes overlooking great chasms, and there were no guard rails or warning signs of any kind—except for the crosses and flowers people had put up in places where friends had gone over the edge.

to view an adult male spatuletail in all his glory. (A day earlier, we had seen a Sword-billed Hummingbird, with its ridiculously long four-inch bill, so we were doing well with one-of-a-kind hummers.)

My favorite birding area we visited in Peru was Abra Patricia, which has vast areas of intact rainforest, numerous specialty birds, and a lengthy paved stretch of highway. We stayed at the biological station and lodge, a joint project of the Asociación Ecosistemas Andinos, the American Bird Conservancy, and other groups. The lodge is somewhat of a work in progress with construction ongoing, but it's an excellent area for birding, with numerous species of birds in the trees around the lodge and in the forest along the road.

*Peru offers a wide variety of habitats, ranging from misty cloud forests high in the mountains to dry, dusty desert below. At right, our tall red bus makes another nail-biting journey along a cliff.*

During our stay at Abra Patricia, we managed to see several of the specialty birds of the area, including the Royal Sunangel, another beautiful and rare hummingbird. I also came close to seeing a Bar-winged Wood-Wren, a species first described by John Fitzpatrick in 1977 (see page 30). Barry Walker played a recording of the bird's call and got a response from the dense foliage along the road one afternoon. The bird moved closer, even visibly rustling the leaves at one point, but it never popped into view. Oh well, I guess that gives me an excuse to go back again. I did get some great views of a brilliant orange Andean Cock-of-the-Rock as it flew across the road and landed in plain

TIM GALLAGHER (2)

# Hooked on Peru

John Fitzpatrick was 22 years old the first time he traveled to Peru, and it changed his life forever. That was in 1974, a good 20 years before he became director of the Cornell Lab of Ornithology. He was just completing his bachelor's degree at Harvard and was planning to start graduate school at Berkeley the following fall when a fateful event took place: famed ecologist John Terborgh of Princeton University came to Harvard and gave a talk on South American birds.

"I had the good fortune of being invited to have dinner with Terborgh and some other students after the talk, and I got completely hooked on the idea of getting to Peru that summer," said Fitzpatrick. After meeting Terborgh, Fitzpatrick quickly changed his graduate school plans and applied to Princeton instead. Then he headed for Peru.

"I bolted out of Harvard," he said. "I didn't even go to graduation, because Terborgh was leaving." He spent that summer at Manu National Park in southeastern Peru, camping with a group of four others in a vast, unspoiled wilderness, immersed in bird study, cutting trails, and learning Spanish. This was just the beginning.

"I designed my Ph.D. thesis to be a survey of the tyrant flycatcher family, quantifying their behavior and comparing it with their body forms," he told me. "There were so many flycatcher species in eastern Peru—eighty species in one locality at Manu," he said.

MOLLY FITZPATRICK

Manu is Fitzpatrick's favorite place in Peru—perhaps his favorite place on earth. "It's paradise," he said. "It has the richest biological diversity on the planet: a thousand species of birds on the transect from mountaintop down into the lowlands. A tenth of the world's bird diversity is right there, in one section of the mountain."

But it was actually in northern Peru that Fitzpatrick made his first ornithological discovery in 1975, together with Terborgh and fellow Princeton student Dave Willard. The three, along with several others, were on their way to Manu to stay for five months, and they decided to head to Cajamarca and then drive eastward on the long, narrow, cliff-hanging road through the Andes (the very same road our group traveled along last fall) to go birding and exploring.

The group went to a little-explored area on the southern tip of the Cordillera del Cóndor range and put up a line of mist nets to measure the bird community on the isolated ridges. Fitzpatrick and Willard opened the nets just before dawn, to avoid catching bats, which were abundant there at night, then went birding for a short time before strolling back toward camp to eat breakfast. There was already a bird in one of the nets. It was clearly a wood-wren but unlike any they had seen.

"So we had taken the wren out of the net—

the first bird we caught," said Fitzpatrick, "and we're saying, 'Jeez, this is a wood-wren, but it's got wing bars.'" The two looked at each other and exclaimed, "This is undescribed!"

The bird was a Bar-winged Wood-Wren (*Henicorhina leucoptera*)—shown in John Fitzpatrick's acrylic painting at right—a bird previously unknown to science, which was first described by Fitzpatrick, Terborgh, and Willard in the April 1977 issue of *The Auk*.

Fitzpatrick returned to Peru again in 1976, and this time shared a field camp with John O'Neill in the same region where the Bar-winged Wood-Wren was discovered, and they found a hummingbird, a tody-tyrant, a brush-finch, and an owl that were previously unknown to science. So in just two summers, 1975 and '76, Fitzpatrick had taken part in the discovery of five undescribed species, and more would follow. It was an exciting time for everyone involved—a flurry of intense scientific exploration as ornithologists went into wild, difficult-to-reach areas in South America for the first time.

"There was this generation of eager young explorers in the 1970s and '80s—pre-mortgages, pre-tenure—getting all over the place," said Fitzpatrick. "It really was a pretty giddy period of exploration."

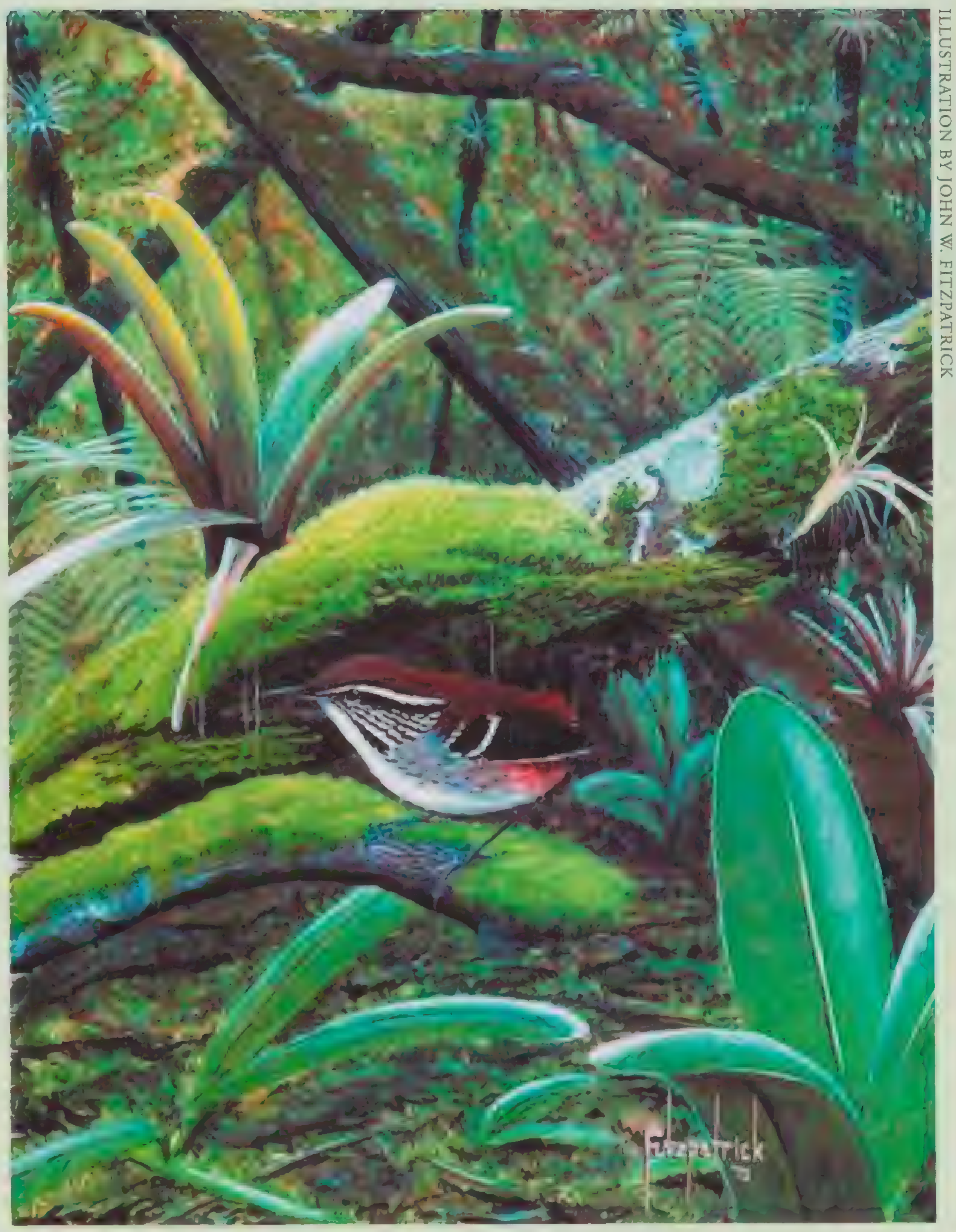

ILLUSTRATION BY JOHN W. FITZPATRICK

Fitzpatrick continued his research in Peru all through graduate school and for most of his time as an ornithologist at Chicago's Field Museum. The final species he described was the Cinnamon-faced Tyrannulet (*Phylloscartes parkeri*), which he found in 1981 and named for Ted Parker. Fitzpatrick went on his last expedition to the country in 1985, but he still looks back on those days in the Peruvian wilderness as a high point in his life, and he hopes to return again.

"That era was the pinnacle for me," he said. "The most powerful personal moments in my life were on those expeditions—designing routes up little ridges, getting up to the tops of the mountains, and experiencing the great camaraderie with the group. It's hard work and physically demanding—all the bugs and rain, mud, boats that leak, and all kinds of bad stuff that happens—but then you get up on the tops of these mountains, where no one but the native people have ever walked, and you look out east over the lowlands and see a thousand miles of pure, uncut forest. It's just the most exhilarating moment."

Fitzpatrick and his new wife, Molly, had such moments on a 1983 expedition, but in 1985 Molly stayed home, pregnant with their first child. When Fitzpatrick climbed up to a lofty ridge at Manu on that final expedition to Peru and gazed at the vast panorama of primeval forest before him, he pledged that he would someday bring Molly and their daughter to this very spot.

"Well that was in 1985, and now it's almost 23 years later, and I still have an unfulfilled promise," said Fitzpatrick. "My daughter, Sarah, told me, 'Dad, you name the time, and I'm there. Anytime you want to go.' She's a senior at Cornell now and is pumped to go, so we'll do it soon. I've been dreaming about it more and more."

*– Tim Gallagher*

TIM GALLAGHER

FRANS LANTING/MINDEN PICTURES

*Although swaths of forest are still being cut in Peru (above), the country is making a major effort to promote land uses that preserve vital habitats. At right, an Andean Cock-of-the-Rock.*

sight in a tree. But the mixed tanager flocks provided some of my most pleasurable birding experiences. They were all so striking, so beautiful in their multicolored plumages—especially the aptly named Paradise Tanager, which sports a pale green head, violet throat, turquoise breast, black back and tail, and a red rump.

One morning before we left the Abra Patricia area, John O'Neill took us to the place where he had set up a mistnet in 1977 and captured a tiny short-tailed brown owl with long, delicate facial plumes. He dubbed the bird the Long-whiskered Owlet (*Xenoglaux loweryi*), a new species and genus. The place had changed a lot in the three decades since O'Neill had discovered the bird. At that time, a road crew was cutting a new road into the area, opening up a virtually unexplored wilderness. O'Neill took advantage of the situation and visited places no ornithologist had ever seen. The place where he had camped is now a pasture with horses and a shack nearby.

We also had the good fortune of being with O'Neill on the 30th anniversary of another discovery—the day he found a population of White-winged Guans, a species that for more than a century had been considered extinct.

It was great having John O'Neill along on the trip. He provided such an excellent overview of the ornithological history of Peru. He also had the foresight—and generosity—to bring along a prepublication copy of *Birds of Peru*, a new field guide that had begun as an idea Ted Parker suggested some 40 years earlier while sitting around a campfire with O'Neill in the Peruvian wilderness. O'Neill had been the driving force behind the creation of the guide from the start and was one of its principal authors and illustrators. And the book is excellent—certainly the best South American field guide, and the only one with the species accounts, range maps, and illustrations conveniently arranged on the same spread. So we had the only copy of the book in the entire country along with one of the world experts on many of the species we would see. Of course, the *Birds of Peru* was a popular item on our bus, and it would sometimes vanish for hours at a time as whoever was lucky enough to have it would pore over the plates, studying the birds we were seeing. (No one was ever eager to relinquish the book.) We often buttonholed O'Neill after we'd spotted a bird we couldn't identify, and we'd describe it in great detail while flipping through the book. He was always generous with his time—and with the book.

The journey ended for us at Tarapoto, where PromPeru had arranged a nature and bird fair, so Peruvian lodge owners and outfitters could talk to journalists and tour operators and show what they had to offer. John O'Neill spoke at the event, as did the county's vice-minister of tourism, which shows how committed Peru is to promoting ecotourism. That can only be a good thing for the people, the habitats, and the wildlife. Peru has problems—there's no doubt about that. We had witnessed just one day earlier how swaths of forest were still being cut down, even in supposedly protected areas, such as the Bosque de Protección Alto Mayo. But there is also hope. If the people can come to see the economic rationale of embracing ecotourism and of protecting their virgin forests—as a sustainable resource far more valuable than small-scale agriculture—then the amazing birds of Peru will continue to be there for all to enjoy. ◆

**ON THE WEB**

For more on Peru, visit www.livingbird.org.

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# SPIRIT OF THE NORTH

*Text and photographs by Marie Read*

## *An intimate portrait of the Common Loon*

Through the misty sunrise on a northern lake echoes a sound that stirs profound emotions in anyone who hears it: the haunting cry of the Common Loon. The loon symbolizes the wildness of the north—wildness that many of us, trapped in an ever-more-urbanized society, long for from the depths of our souls.

Since ancient times the loon has featured prominently in Native American mythology. In Sioux and Lakota legends it plays a role in recreating the post-diluvian world. An Ojibwa tale credits the loon's voice as the inspiration for Native American flutes. And from Alaska, a Tsimshian story describes how a loon restores a blind man's sight, for which it is rewarded with the gift of the beautiful necklace of white feathers adorning its neck.

Strikingly handsome, with jewel-like red eyes and an unearthly yet beautiful call, fiercely territorial while breeding, and possessed of magical powers—clearly there's nothing "common" about the Common Loon. On the other hand its European name, "Great Northern Diver," is a name well deserved, for the loon is a master of the aquatic environment. With barely a splash it slips beneath the water's surface in search of food, propelling itself powerfully and with great agility using its large webbed feet. It dives as deep as 180 feet and, although dives usually average under a minute, loons have been known to stay underwater for as long as 15 minutes.

Feet set far back on the body make the loon a powerhouse of a swimmer, but hamper its mobility on land. An incubating adult can only shuffle awkwardly to get onto its nest. A chick has a similar struggle to clamber onto its parent's back to rest or warm up.

*A Common Loon and its chick float peacefully on a misty northern lake at dawn.*

Luxuriating in the warmth of the adult's body, the tired chick may immediately fall asleep, sometimes neglecting to stow a foot or a wing in its exhausted state. Adult loons sometimes roll over onto one side and hold one webbed foot in the air while loafing or preening on the water. It's called the "foot waggle" but, unlike the drowsy chick, the adult does it purposefully, to cool down in warm weather. Repeatedly shaking the raised foot alternating with dipping it into the water further improves the cooling action.

Loon chicks are semiprecocial. Even though they hatch down-covered and active, with their eyes open, they depend on their parents for food, unlike truly precocial young birds, which can feed themselves. Once dry, the baby loons leave the nest and swim away with the adults.

From the very beginning of its life outside the egg, the loon chick's behavioral repertoire is impressive. Watching it perform miniature versions of adult activities can only increase its "cute" factor! Consider the majestic pose an adult loon assumes when it rears up dramatically out of the water to flap its wings after preening or bathing. Chicks just a few days old do likewise, long before there's even a hint of flight feathers on their stubby wing buds.

*Luxuriating in the warmth of the adult's body, the tired chick may immediately fall asleep, sometimes neglecting to stow a foot or a wing in its exhausted state.*

Nascent foraging techniques are there too. Within a day of hatching the chick can dive, although its downy covering makes it so buoyant at this point that it can only stay submerged for a few seconds before bobbing up to the water's surface like a cork. But within a week it can dive to the bottom and begin trying to chase small fish and other prey.

Mirroring its parents, the young loon starts peering beneath the water's surface when it is just a few days old. Loons and other fish-eating birds, such as mergansers, have excellent underwater vision. They often locate prey by looking into the water, submerging their eyes completely.

*Too tired to be tidy, a loon chick takes an afternoon nap on its parent's back (above left). Togetherness: the young loon snuggles up against the adult's neck (above right). At this age, young loons often ride about on their parent's back, safe and protected, with an excellent vantage point to view their surroundings. Adult loons are quite protective of their young right up until they disperse.*

Common Loons are primarily fish-eaters, although they also consume crustaceans and other invertebrates. Prey is usually swallowed underwater, but occasionally a loon captures a fish large enough that it must be brought to the surface to be processed and swallowed. To feed newly hatched young the adults bring small items—minnows, insects such as dragonfly and damselfly nymphs, and occasionally leeches—offering larger prey as their chicks grow.

Loon chicks beg with high peeps and yelps, and their parents communicate with them by means of soft hoots and clucks. Adult loon vocalizations are varied and complex. The wail—a long, mournful wolflike howl—is used by separated loons to reestablish contact with one another. Chicks start giving wails at a week old, although they are much higher pitched than their parents' wails. The tremolo sounds like crazy laughter and is given in distress. Unique to male loons is the yodel, a far-carrying series of repeated phrases consisting of alternating high and low notes, performed to advertise the male's territory. Each male's yodel is unique, identifying him to neighboring males and potential intruders.

By the time it is two months old, the young loon has found its adult voice and is fully feathered, capable of remaining underwa-

*Within days after hatching, loon chicks begin using adult foraging techniques (above left). Here chick and adult peer beneath the water's surface in search of food. At left, striking a noble pose, the loon chick flaps its tiny wings. It will be two months before the youngster is fully feathered and yet another month before it can fly. Above, an adult loon offers a dragonfly nymph to its chick.*

ter almost as long as its parents. It increasingly forages on its own, but another month must pass before the youngster is capturing all its own food and is able to fly.

With the approach of autumn, the parent loons leave their territory, usually a few weeks before their offspring, and congregate with other adults on large lakes. Juvenile birds sometimes remain on their natal lakes until freeze-up, eventually departing to join groups of now-molting adults before all of them migrate for the winter to coastal marine locations. Immature loons generally remain for several years in the wintering areas, before they reach maturity.

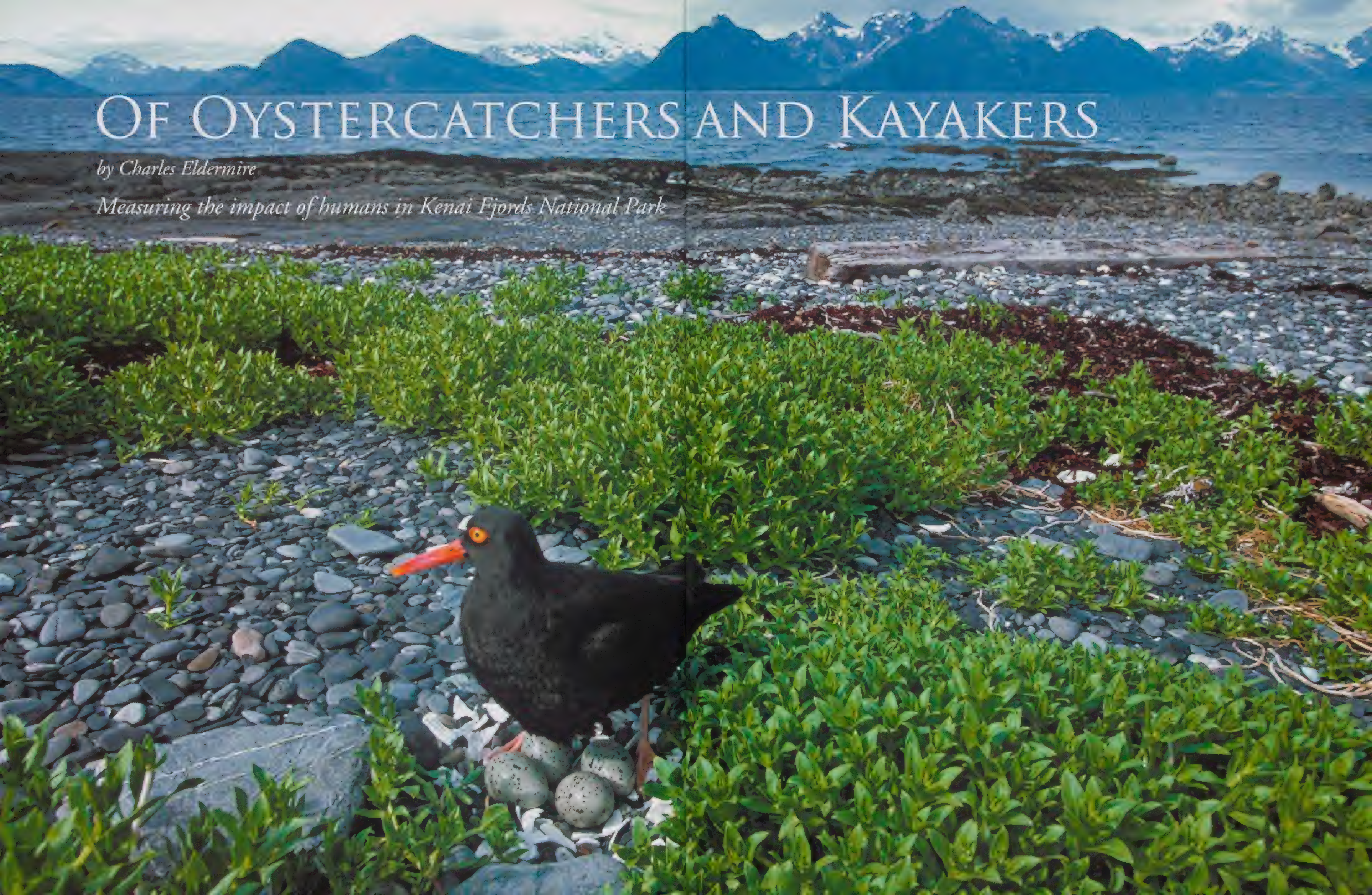
In some future spring, the bird that began life as a fluffy chick bobbing on the water will return as an elegant adult to the northern lakes. With eerie wails and wild tremolos, its voice will echo across the water, and once more the loon will claim its territory—and our hearts—as the spirit of the north. ◆

*Marie Read is a freelance writer and nature photographer based in Freeville, New York. Visit her web site at www.marieread.com.*

# OF OYSTERCATCHERS AND KAYAKERS

*by Charles Eldermire*

*Measuring the impact of humans in Kenai Fjords National Park*



My eyes strain, searching among the wave-cast cobbles of a rocky beach in Kenai Fjords National Park. Swaddled in orange, coated in rubber, and soaked through from the mists, we wait as our small boat carefully approaches shore, deep in a sheltered cove. Suddenly, a rapid *kek-kek-kek-kekeddee* call bursts forth from down the beach, and we spot our quarry: a Black Oystercatcher (*Haematopus bachmani*).

The boat driver cautiously noses the boat toward shore, wary for oncoming waves, as I jump from the bow into knee-deep water, giving the boat a solid push back to make sure it doesn't get caught up in the waves breaking on shore. Ahead of me, the lone oystercatcher continues its tirade, and I trudge up the beach to scan for its mate.

With its long, bright-orange bill, deep black plumage, and punk-rock-inspired toenails, you'd think it would be easy to spot this large shorebird, but oystercatchers are remarkably difficult to find when they are hunkered down on a nest, incubating eggs. If I'm lucky, I'll spot a dark shadow among the stones and find the nest quickly. If not, I could spend an hour walking the high-tide line searching for an inconspicuous depression in the gravel, holding two or three eggs, perfectly camouflaged to resemble the larger stones surrounding them. But this time I spot the incubating adult quickly among the cobbles on this windswept beach and start gathering data. Within 15 minutes I'm back on the boat, returning to the blue glacial waters of Aialik Bay.

CHARLES ELDERMIRE

GERRIT VYN

*On the previous spread, a Black Oystercatcher incubates its eggs in Alaska's Kenai Fjords. Author Charles Eldermire (far left) checks the contents of an oystercatcher nest. Black Oystercatchers (above) are unmistakable with their stunning red bills and glossy black plumage. Nesting pairs maintain a high level of vigilance.*

Such was life during my tenure as a research technician in 2005, working on a multiyear study to find out how much the presence of humans is affecting the nesting productivity of Black Oystercatchers in Kenai Fjords National Park. Sponsored by the Ocean Alaska Science and Learning Center, Kenai Fjords National Park, the University of Alaska–Fairbanks (UAF), and the U.S. Geological Survey's Biological Resources Division, the research project was led by UAF master's degree candidate Julie Morse, a seasoned field biologist with years of experience studying waterfowl in the Yukon-Kuskokwim Delta.

Although the park had collected data on the oystercatchers in past years, Morse's study was the first to take an intensive look at the nesting productivity of the birds. Due to their small population size, low reproductive success, and limited distribution, Black Oystercatchers are listed as a species of high conservation concern by the Alaska Shorebird Working Group.

PHOTO ON PAGES 42 AND 43: MILO BURCHAM

In Kenai Fjords, oystercatchers seem to prefer nesting on cobble beaches—which also happen to be some of the favorite camping areas of the kayakers who visit the park. When the study began, no one knew exactly what effect the campers might be having on the birds. And it was a potentially thorny issue, because it is difficult to quantify the consequences of various kinds of disturbance on the birds. It's obvious in the case of a species like the Spotted Owl that human disturbance in the form of clear-cutting the forest has a major negative impact on the birds. But it's more difficult to evaluate what effect hikers traveling through the backcountry might have on these owls. It's a similar situation with the Black Oystercatchers: How do we evaluate the effect of these nonconsumptive users who come to the park to enjoy the wilderness experience?

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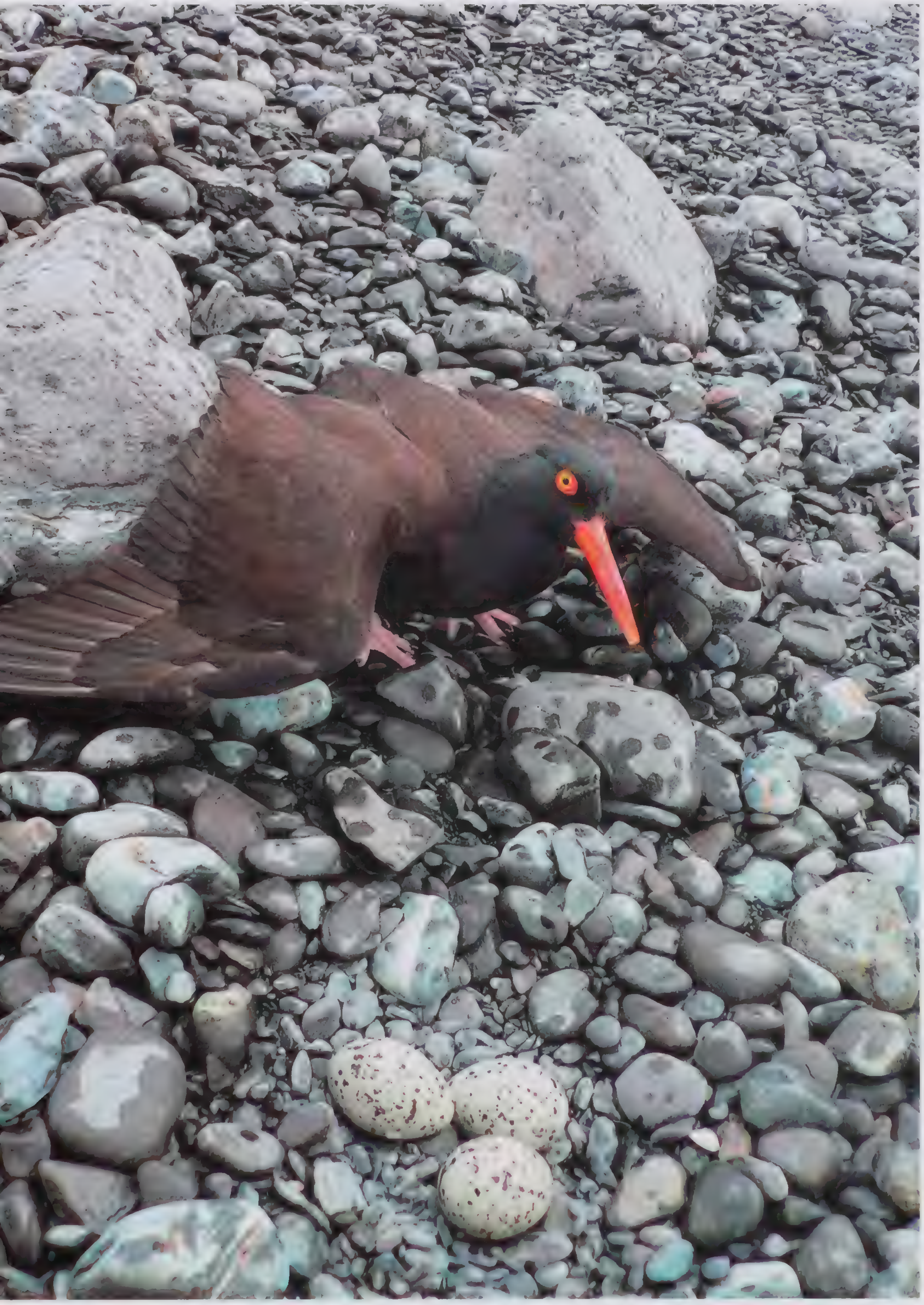


Of course, human disturbance has been implicated in the declines of many species, from raptors and waterfowl to shorebirds and even passerines. However, these relationships are generally species-specific, and what affects one species may not affect another.

Although the effect that recreational kayakers might have on oystercatchers was largely unknown prior to Morse's study, it was obvious that oystercatchers keep an eye on human interlopers and often become agitated. "As soon as a human arrives, a lot of oystercatchers get off their nests, so they're not incubating their eggs," says Morse. "They spend a lot of time yelling at the people in the area instead of foraging or incubating, so it's a distraction for them."

Another potential impact of people visiting the birds' nesting areas is the accidental trampling of eggs. The eggs are highly camouflaged and difficult to see. An unwary kayaker could easily step on a nest by mistake. One day we saw a group of kayakers pull up on a beach we were observing and unwittingly head straight for a nest, eventually sitting down for lunch within a few feet of it.

From a management perspective, Morse hoped that her study would have a very pragmatic outcome—"to determine what level of human use is okay and will not affect oystercatchers and what level is too much."

To measure productivity and what affects it, a scientist must be able to measure the factors that could potentially influence it. Many things can affect nest success. Predation often plays a major role in determining how many young nests produce. The suite of potential nest and nestling predators includes gulls, ravens, eagles, falcons, hawks, bears, deer, otters, mink, and wolverines.

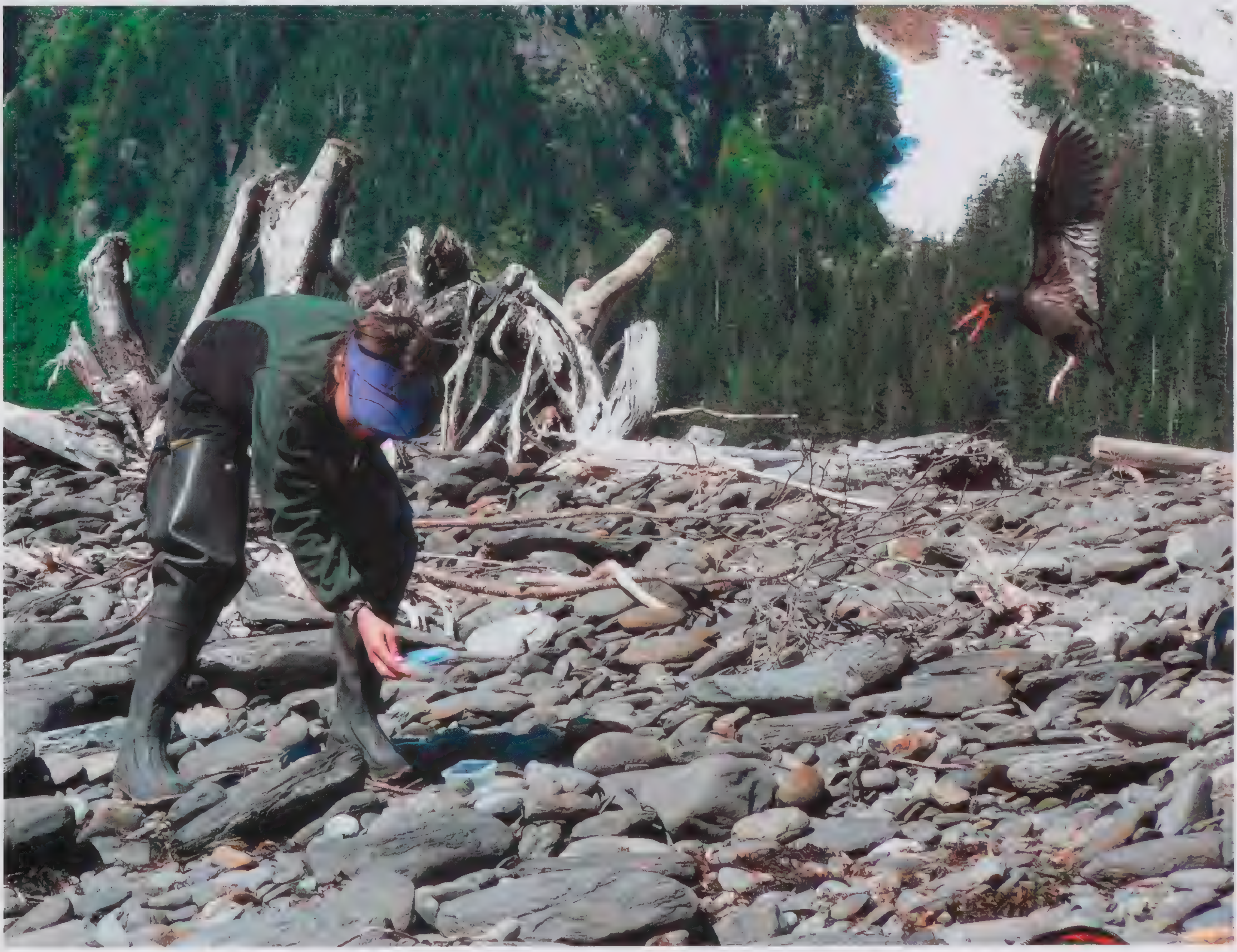
"None of these predators are making a living off these oystercatcher eggs," Morse explains, "but the eggs or the chicks are in such obvious spots that they are completely vulnerable to predation"—even though, for a human, finding a nest can seem almost impossible. Another factor might be the climate, with cold, wet conditions being unfavorable for nest survival. And in the case of Kenai Fjords, the actions of recreational users might also be harmful.

To address the issue of productivity, Julie and her crew monitored 35 to 39 breeding territories spread out across more than 175 kilometers of coastline in Aialik Bay and Northwestern Fjord during the breeding seasons from 2001 to 2005. We visited these territories periodically to check whether birds had begun nesting, and then revisited them to keep tabs on incubation, hatching, fledging, and failed nesting attempts. The researchers banded each pair with a unique combination of colored leg bands so that their nesting success could be charted from year to year. This approach is important with this species. Black Oystercatchers are a long-lived species, and animals that live longer usually have lower annual productivity because they will probably be able to come back the next breeding season and try again; shorter-lived species do not have this luxury.

The level of recreational use was more difficult to study, because kayakers, hunters, and fishermen are not required to have permits to enter the backcountry. Consequently, no official tally of backcountry users exists (although there is a voluntary permit system). Due to the difficulty and expense of arriving by boat from Seward, the number of campers is low compared with the parks in the Lower 48 states. But established campsites are scattered throughout the park (including sites on the nice cobbled beaches that oystercatchers prefer), and these sites are stocked

*The highly camouflaged eggs are difficult to see, and an unwary kayaker could easily step on a nest. One day we saw a group of kayakers land on a beach and head straight for a nest, eventually sitting down for lunch within a few feet of it.*

*A female Black Oystercatcher (on facing page) aggressively defends her nest. Below, researcher Julie Morse floats an oystercatcher egg in a small tub of water. This process is harmless to the eggs and provides a useful estimate of the hatch date.*



CHARLES ELDERMIRE (2)

with bear-proof food lockers. These lockers yielded a goldmine of information when they were fitted with a data-logger to record when the door was opened, providing a useful means for measuring how often the sites were used. Park rangers on patrol also gathered data about recreational users when they encountered them.

Finally, Morse set up an experiment that simulated the disturbances that campers might produce. She designed a protocol in which an observer would arrive at the beach, set up a tent, take two beach walks, and then break camp, all within an hour. These "disturbance" experiments were preceded by an hour of observation without disturbance, to get a baseline idea of how much time on average the adults incubate their nests. She compared the incubation durations from the disturbance trials with the undisturbed trials to see how much influence setting up a camp had on incubation.

After several seasons of study, a pattern began to emerge. The researchers monitored more than 500 eggs, which produced a total of only 51 chicks fledged, indicating that nest productivity was indeed abysmally low—roughly one chick fledged per pair every three years—but that's fairly normal for Black Oystercatchers in other places. The in-depth behavioral disturbance experiments showed that oystercatchers incubate 39 percent less on average in response to the simulated camping, suggesting that kayakers could have an influence on nesting behavior. But actually, recreational use of these areas peaked well after the height of oystercatcher hatching, suggesting that kayakers and other recreational users probably have little effect on the majority of oystercatcher nesting attempts.

A much more natural factor—predation—accounted for most nest failures, causing approximately 65 percent of unsuccessful nests. Morse did find that the broods of oystercatchers nesting on rocky islands, away from the cobble beaches, had a far higher survival rate. This change of habitat hints at a possible tradeoff between the easy foraging of the cobble beaches and the relatively predator-free rocky islets.

Many living creatures can decrease the nest survival rate of the oystercatchers, but one ecological influence looms large—the sea. Oystercatchers nest right above the high tide line, and each year brings higher-than-normal tides during the spring full moons, which can flood the nests. Eggs that float out of the bowl for a short time and are returned to the nest by the adults when the water recedes seem to hatch fine. But sometimes spring tides combine with storms to flood the area completely, floating the eggs away and ending the nesting attempt. This was the most important ecological factor affecting nest survival in the study area. Extreme high tides were the direct cause of six

*The suite of potential nest and nestling predators includes gulls, ravens, eagles, falcons, hawks, bears, deer, otters, minks, and wolverines. None of these predators makes a living off oystercatcher eggs, but the eggs or chicks are in such obvious spots that they are completely vulnerable.*

*The oystercatcher egg at left was eaten by a predator, probably a raven or gull. Floating ice from Northwestern Glacier (on facing page) is a stark reminder of the seasonal ebb and flow of glaciers. The effects of global climate change on Black Oystercatchers are currently unknown but could well be severe.*

CHARLES ELDERMIRE (2)

percent of nest failures and may have caused the failure of an additional 23 percent.

So what does this mean for Black Oystercatchers in Kenai Fjords National Park? For now, not much of an overlap exists between recreational users and nesting oystercatchers, which suggests that kayakers do not have a high "direct" impact on the birds' nesting success. But kayakers and oystercatchers tend to prefer the same beaches, so the impacts may be more subtle. Oystercatchers show high nest site fidelity regardless of recreational use, and they will probably continue to return to these beaches as the number of human visitors increases; the question is whether other animals will also be drawn to these beaches. No one knows whether the predator communities change at camping beaches, and because current levels of predation are already high this is a topic of concern.

The high nest-site fidelity of Black Oystercatchers also gives the Kenai Fjords park managers a straightforward management strategy. Most recreational use is concentrated around the food lockers, and campsites are grouped accordingly. One proactive option being considered by the park as a result of this study is simply to move the food lockers (and by extension, the campsites) farther away from the oystercatcher nesting areas, thus reducing the potential for disturbance.

Although park managers can take actions to increase oystercatcher productivity, there is one factor they cannot manage: the climate. Current global climate change predictions suggest that both the sea level and the frequency of storms will increase across the globe, though these effects will vary by region. These oystercatchers exist at the thin border between dark ocean waters and towering green mountains, and higher waves from an encroaching sea may portend a difficult future for the oystercatchers of the Kenai Fjords.

◆

*Charles Eldermire is the public education outreach associate at the Cornell Lab of Ornithology. He is also a wildlife biologist and fledgling writer. Visit his Sapsucker Woods blog at sitta.wordpress.com.*

**ON THE WEB**

For more on Black Oystercatchers, visit www.livingbird.org.

# Why Sing the Wrong Song?

*by Jack Connor*

## *The puzzle of bilingual chickadees*

The first scientist to report bilingual singing in chickadees seems to have been James Tanner, who reported the phenomenon in a 1952 article in *The Auk*: "Black-capped and Carolina chickadees in the Southern Appalachian Mountains."

"In the early morning of April 18, 1949, in the Great Smoky Mountains at an elevation of about 2,800 feet, I heard a chickadee rapidly repeating a fairly typical Carolina song, and then suddenly it switched to a typical black-capped song, pitched much lower," wrote Tanner. "It continued this song as it moved rapidly up the slope. From subsequent observations and collections of birds in that area, I suspect it was a young Black-capped Chickadee that had wintered at the elevation or lower in company with Carolina Chickadees."

Tanner is best known today for his study of the rarest of the rare, the Ivory-billed Woodpeckers at Louisiana's Singer Tract in the late 1930s. A decade later, he spent three winters and springs (1948 to 1950) in the mountains of Tennessee pursuing two of North America's most common birds and helped to spark an investigation that continues today.

If you have birded on either side of the 1,500-mile-long boundary running from northeastern New Jersey to southwestern Kansas, which ostensibly separates the ranges of our two most look-alike chickadees, you have probably considered the same questions as Tanner: "Do [black-caps and Carolinas] intermingle and perhaps interbreed? If [not], what factors operate to keep them separate?" If you have spent enough time inside the narrow zone where their ranges overlap and both species are possible, you may even have heard chickadees whose songs were hard to place. Is that a black-cap, a Carolina, or both?

Plumages, sizes, and behavior are so similar in the two species that, ordinarily, voice makes the most reliable distinction for human observers. Black-caps have a slower, huskier call, *chick-a-dee-dee*,

MARIE READ (2)

and a simpler and lower-pitched song, *fee-bee* or *fee-bee-ee*. "The typical song of the Carolina," Tanner notes, "is a thinner, higher-pitched, four-noted, *se-fee-se-fu*."

Does the song always prevent females from choosing males of the other species—or do they sometimes make mistakes? Do males themselves get confused about what they should be singing?

Using the best method available at the time—the measurements of tail-wing ratios—Tanner found no "obvious hybrids" in the Smokies, though he suspected mixed parentage in a dozen specimens collected in the late 1800s by Charles F. Batchelder in Potts Balsams in the mountains of North Carolina, at the southernmost tip of the black-cap's range. Tanner concluded that competition clearly exists between the two species in the Smokies, especially in winter when black-caps descend from the mountaintops, but they are ordinarily kept separated on their nesting grounds by the black-cap's better adaptations for higher altitudes and colder weather. The single bilingual black-cap he had observed had apparently learned its song while wintering among Carolina chickadees. Tanner's presentation suggests he believed that that songster had made an unusual mistake.

*Black-capped (left) and Carolina chickadees (above) are so similar in appearance and behavior that their songs are often the best way to tell them apart—except when they mimic each other.*

Richard Brewer followed Tanner's work with a five-year study, 1954 to 1959, incorporating historical records and his own observations from Illinois, Indiana, Michigan, Missouri, North Carolina, Tennessee, and Texas. In "Ecological and Reproductive Relationships of Black-Capped and Carolina chickadees" (*The Auk*, 1963) he reported apparent gaps between the two species' ranges in some areas and close contact in others, along with a general absence of information from many states. He noted that some older records suggest that Carolina Chickadees have been pushing slowly northward into black-cap territories, and he speculated that this push has continued for thousands of years. The black-caps Tanner studied in the Smokies, Brewer argued, are members of a "relict population" and evidence that black-caps once held a much wider and more southern range.

Brewer carefully charted songs in several areas of close contact, especially one area on the Kaskaskia River, north of Carlyle, Illinois. In the first 20 miles north of Carlyle, he heard only Carolina songs; 40 miles north, he heard only black-cap songs. In the 20 miles between those lines, near Vandalia, Illinois, both species' songs could be heard and also "atypical" vocalizations "outside the range of variation of

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either [species]."

Brewer suspected the abnormal singing came from hybrids, and he labeled the area (and an area in Missouri where he found the same pattern) a "hybrid zone." If we think of song as primarily a courtship device, then a male singing the "wrong" song may seem confused about his identity—as if his instincts have been cross-wired by mixed parentage. Brewer also noted, however, several instances where presumed pure-bred males of the two species responded to each other as rivals, including singing their own songs back and forth at each other "in a vocal duel that seemed identical to those of intraspecific nature."

Rodman Ward and Dorcas A. Ward followed Brewer's work with a five-season study of their own, 1963 to 1969, and reported their results in "Songs in Contiguous Populations of Black-capped and Carolina chickadees in Pennsylvania" (*The Wilson Bulletin*, 1974). The Wards had the significant advantage of tape recording and playback and used it well. Their analysis of an area along the border of Berks County and Chester County closely paralleled Brewer's analysis in Illinois and Missouri. Only Black-capped Chickadee songs were recorded in Berks, north of the border; only Carolina Chickadee songs were recorded a dozen or more miles south of it. In between, in northwest Chester County and an adjacent area of Lancaster County, they recorded the songs of both species, as well as abnormal songs and also "duality"—individuals singing songs of both species, as Tanner's 1949 male had done.

The Wards' playbacks confirmed Brewer's sense of intraspecific rivalry: within the area of contact, individual males responded aggressively to both songs. North and south of that area, each species apparently ignored recordings of the other.

Was Brewer correct in suggesting that the odd singers were hybrid birds?

"Although hybridization is perhaps the most likely cause for vocal anomalies," the Wards concluded, "we would like to raise [the possibility] that the two species could be responding to contact by developing some degree of vocal convergence and mimicry. We admit the evidence for this theory is scant, but we feel it deserves some attention."

More than 30 years of subsequent research has added several twists to this story, but apparently both ideas—Brewer's idea that hybrids are numerous in the contact zone and the Wards' that vocal convergence and mimicry are factors—have been proven correct.

Young chickadees raised in the contact zone hear both species' songs around them, and because songs reflect learning ("nurture") at least as much as genetics ("nature"), the birds can grow up to sing and respond to either or both songs. We should remember also that male song is generally intended as much to intimidate males as to attract females. This is especially true in chickadees because pairs apparently form in winter before singing starts. Perhaps, bilingual males hold an advantage in intimidation compared with other males in the contact zone.

In the last decade or so, the puzzle has grown even more complicated as blood samples and biochemical analysis (looking at mitochondrial DNA, among other things) have demonstrated that hybrids are very numerous in the contact zone, and more sophisticated recording has demonstrated that both aberrant and dual singing are very frequent there. A number of investigations have also found that the contact zone is moving steadily northward, as Carolinas and hybrids replace populations of pure-bred Black-capped Chickadees—at a speed of nearly a mile a year in some areas. Robert Curry and his students at Villanova University have recently re-examined the area in Berks, Chester, and Lancaster counties in Pennsylvania, where the Wards found a hybrid zone in the 1970s. Today, they discovered, you will hear only Carolina Chickadee songs there.

Space limits the discussion of these and many other related developments. For more details, see Curry's excellent overview, "Hybridization in Chickadees: Much to Learn from Familiar Birds" (*The Auk*, 2005), or the new book, *Ecology and Behavior in Chickadees and Titmice*, edited by Ken Otter (Oxford University Press, 2007).

This puzzle should especially intrigue amateur observers because our own reports can become valuable data. The lines of the "contact zone" are much better known nowadays than they were in the 1960s and 1970s, and if you live in any midlatitude state from Kansas east, you should be able to find information on the Internet about how close the line currently stands to your favorite birding spots. You can also participate outside the contact zone—especially in areas north of it—by recording songs and the number of chickadees you find in your backyard or the nearest woodlot. See www.ebird.org for easy ways to record and compile your finds.

What's that, you say? You have only Black-capped Chickadees in your neighborhood? Keep an ear out. Carolina Chickadees—and their hybrid offspring—have been moving northward for at least half a century and possibly since the last Ice Age. They are almost certainly headed in your direction.

◆

*Sure they can fly.*

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## A Summer of Birds: John James Audubon at Oakley House

*by Danny Heitman*
*(Louisiana State University Press: 2008)*

## Good Birders Don't Wear White: 50 Tips from North America's Top Birders

*edited by Lisa White*
*(Houghton Mifflin: 2007)*

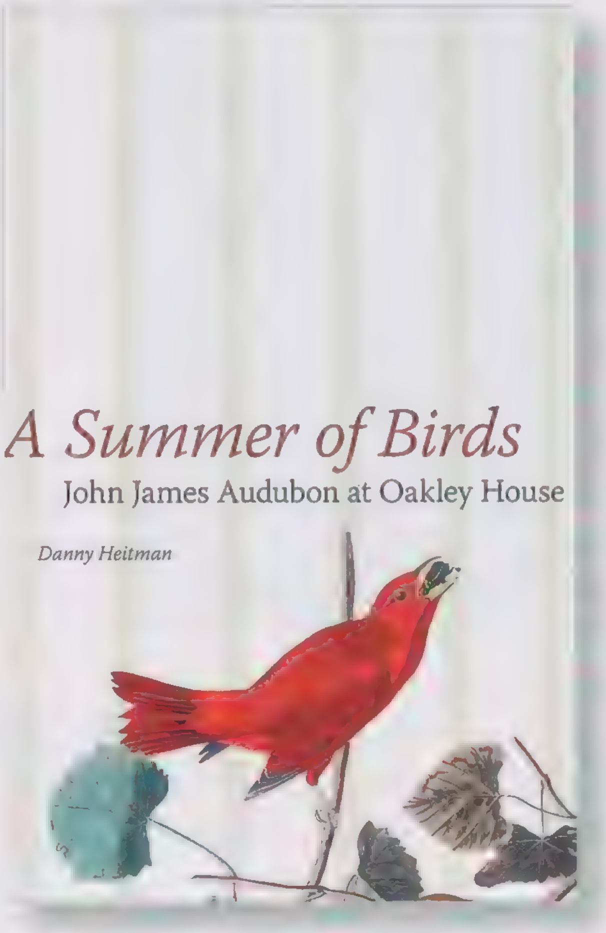
## Fifty Places to Go Birding Before You Die

*by Chris Santella*
*(Stewart, Tabori, and Chang: 2007)*

### Reviewed by Stephen J. Bodio

In 1821, a penniless Audubon came to the Pirrie plantation in Feliciana Parish of Louisiana as tutor to the 15-year-old daughter of the house. He was broke and had two young sons, a situation most people would have found daunting. But as Danny Heitman says: "Freed from the constraints of the merchant and mill trade, a livelihood for which he had been groomed by his businessman father, the thirty-six-year-old Audubon felt at greater liberty to pursue the art that had always been his true passion."

Heitman's thesis is that Audubon's summer on the vast plantation gave him the impetus his evolving work needed. He cites Dennis Dufrene, a ranger at the Audubon State Historic Site, who identified 23 paintings that Audubon completed at Oakley house and 16 more with possible links. But perhaps even more important, Oakley opened Audubon's eyes to the possibilities of Louisiana; 167 of his plates, out of 435, have their origins there, more than in any other state.



If that were the only virtue of *A Summer of Birds* it would be no more than a worthy historical note, but the book is full of quirky particularities. I had never known that young Audubon specialized in a peculiar genre of the time—portraits of the newly dead in a time and place when death arrived unexpectedly and photography did not exist. Nor had I known that many of his meticulous backgrounds were painted by his assistant Joseph Mason, who may have been as young as 13, or that his engraver Havell rather than the painter himself may have "filled in" his backgrounds with portraits from Alexander Wilson, absolving Audubon from any taint of plagiarism.

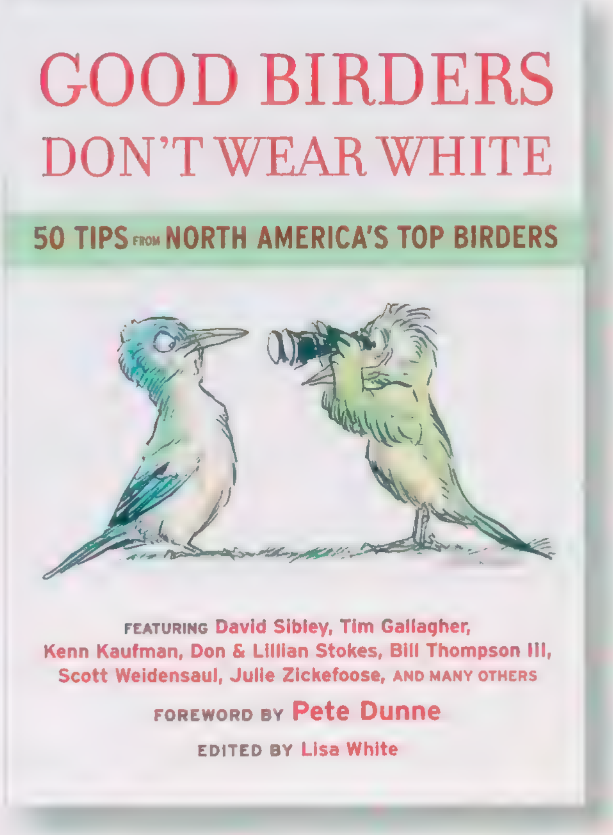
Heitman can be funny; while arguing—in a description of the famous (or infamous) portrait of mockingbirds fighting a rattlesnake in a tree—that Audubon is not guilty of "tabloid sensationalism," he also imagines his doing television in "the swashbuckling style of a TV nature documentary." It is given to us to imagine whether he would be David Attenborough or Steve Irwin.

*A Summer of Birds* is a fine portrait of the artist as a man in motion, a young man rather than an icon. "From the upper gallery of Oakley, this world once walked by Audubon can seem as comfortably self-contained as a snow globe. But the Audubon legacy memorialized at Oakley isn't the snapped ribbon of a finish line, but a baton in an ongoing race."

❖

*Good Birders Don't Wear White* and *Fifty Places to Go Birding Before You Die* are both guides of a sort, unlike *A Summer of Birds. Good Birders* is the more practical, full of hints that can make you a better birder, with humor, compiled by a list of birding stars. Some of the hints are common sense: clean your optics; bigger magnification is not better; take notes; have good manners; keep a calendar. Others are more esoteric, at least to me; I didn't know that waving a white rag will flag in sea ducks and the big grebes. I hadn't thought about the details of introducing children to birds, though I found it interesting that, as Laura Erickson suggests, both my son and I were started with "real" guides as kids.

One caveat: although I completely agree with Pete Dunne that it is best to


GOOD BIRDERS
DON'T WEAR WHITE
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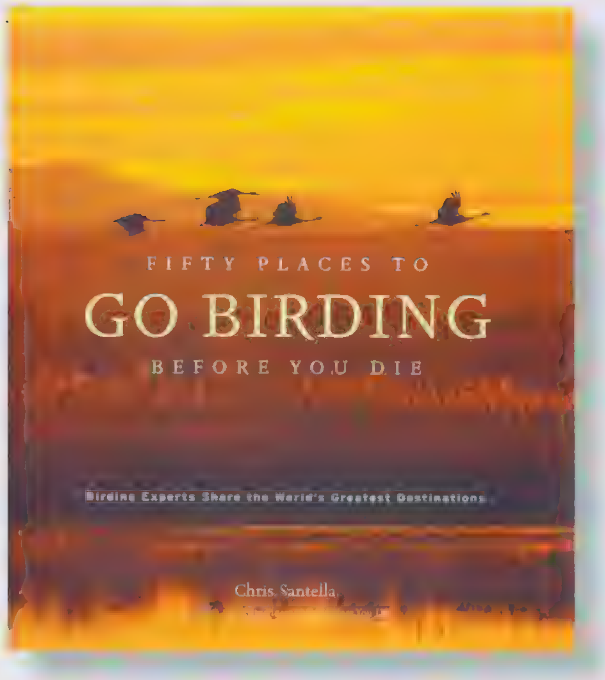
FIFTY PLACES TO
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Birding Experts Share the World's Greatest Destinations
Chris Santella

"use good equipment" (and I thank him for, many years ago, giving me my first great pair of binoculars, which I still use), I fear that too much commodification is happening in our beloved pastime. Tours to exotic places are now a given; a weekend winter drive through any refuge will reveal 50 fancy sport-utility vehicles disgorging birders with spotting scopes that cost as much as a used car. When a set of tips for digital photography says that "you can get started in digital photography with an investment of two thousand dollars or even a bit less," I worry. Perhaps better to go with the chapters on "Dump the Gear" and "Let Birds Help You Escape to Paradise": home.

Every destination in *Fifty Places to Go Birding Before You Die* is home to somebody, but you would probably have to be a multimillionaire to see them all: the book covers prime locations in Ecuador, Greenland, Madagascar, New Guinea, and Trinidad, not to mention Sub-Antarctic islands, Ohio, and New Mexico's famed Bosque del Apache. It is a beautifully produced book that I will probably keep for the photographs alone—the Helmet Vanga and the Ribbon-tailed Astropia are worth the price of admission by themselves. Anyone can visit at least one place, and you might get lucky; a trip on other business allows me to confirm that "Kazakhstan is one of the best places in the world to see Ibisbills."

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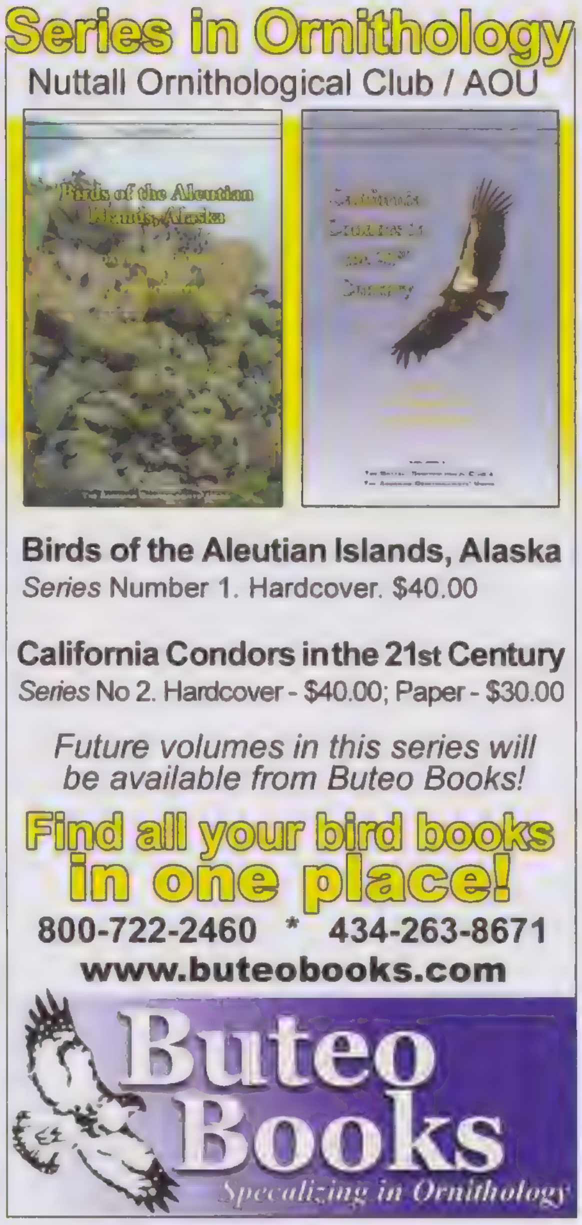
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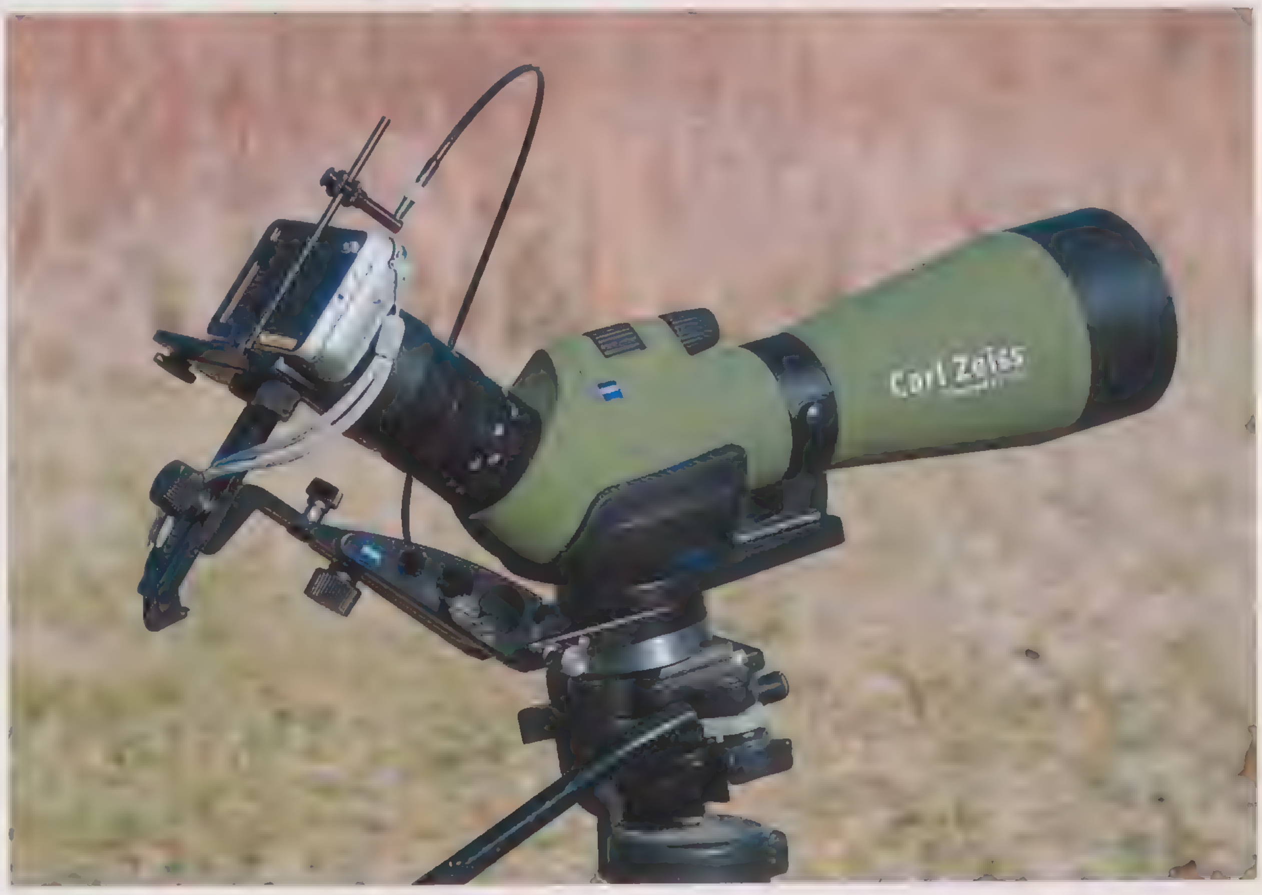
# Zeiss Digital Camera Adaptor



RON AUSTING (3)

It wasn't that many years ago when an article on digital photography by Arthur Morris graced the pages of *Living Bird* ("Crossing the Digital Divide," Summer 2003). Being diehard film addicts, my friend and fellow bird photographer Rich Wagner and I scoffed at the claims in the article, which promoted digital photography. We went so far as to write a lengthy letter to the editor in defense of film. I'm so happy that the letter was never published. I hate eating crow! Today, my only use of film lies in the thousands of images collected over the course of a lifetime, patiently resting in plastic sheets in file drawers, awaiting their turns for a trip to the scanner to become digitized.

Although most professional photographers use expensive single-lens-reflex digital cameras that look almost indistinguishable from their film-using predecessors, another way to go for folks interested in taking bird pictures for the sheer fun of it is digiscoping. At its most basic level, digiscoping is simply holding a small point-and-shoot digital up against the eyepiece of a spotting scope and snapping a picture (See "Digiscoping Revisited" by Kevin J. McGowan, Spring 2007). The big advantage is that you don't have to buy an expensive telephoto lens. Since most avid birders already carry a scope and tripod, it's just a matter of aiming and focusing the camera properly through the scope and holding it steady as you snap a picture of whatever bird you are viewing.

But how do you line up the camera quickly and keep it steady? People have come up with all kinds of solutions—holding the camera a certain way with their finger wrapped around the camera lens and scope eyepiece; using a variety of homemade adaptors; or buying a custom adaptor from an optics shop. The best one I've seen is the Zeiss Digital Camera Adaptor, which is hinged so you can move your camera out of the way when you want to look through your scope but then move it instantly into place to take a picture of the bird you're viewing.

The setup I use with the adaptor employs a Zeiss Diascope 85 scope, a Bogen 3221 tripod with a 3130 head, a Sony DSC N-1 camera, and a shutter release cable (which is vital to minimize camera shake). The Sony camera is wonderful, and worthy of a review of its own. A touch screen focusing option allows you to touch the spot on the viewing screen that you want to be in focus, and it instantly becomes sharp, eliminating the possibility that your camera might automatically focus on a branch instead of the bird you want to photograph. As you can see in the picture of the Tufted Titmouse at left, this setup produces incredibly rich images with unsurpassed feather detail. I'll never go back to film!

Price: $455

— *Ron Austing*

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ARTHUR MORRIS/BIRDS AS ART (2)

# Jamaica Bay, New York

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The refuge boasts a diversity of habitats, including ponds, woods, upland fields, saltmarshes, and a bay with small islands, which explains the wide variety of species it attracts. Both spring and fall are good times to visit to see the largest numbers of birds—both in terms of species and individuals. The shorebird watching is particularly good in June and September when the water in the East Pond is lowered to create a mudflat for the birds.

The visitors' center is open from 8:30 A.M. to 5:00 P.M. every day except Thanksgiving, Christmas, and New Year's Day. The refuge trails are open from dawn to sunset. For more information, call (718) 318-4340.

*—Tim Gallagher*

**DIRECTIONS:** Drive east from Brooklyn on the Belt Parkway, then take Exit 17 (Cross Bay Boulevard) and travel south across the North Channel Bridge. Continue for an additional one-and-a-half miles. The refuge headquarters is on the right. Or you can take the Q21 or Q53 bus, which drops passengers right at the visitors' center.

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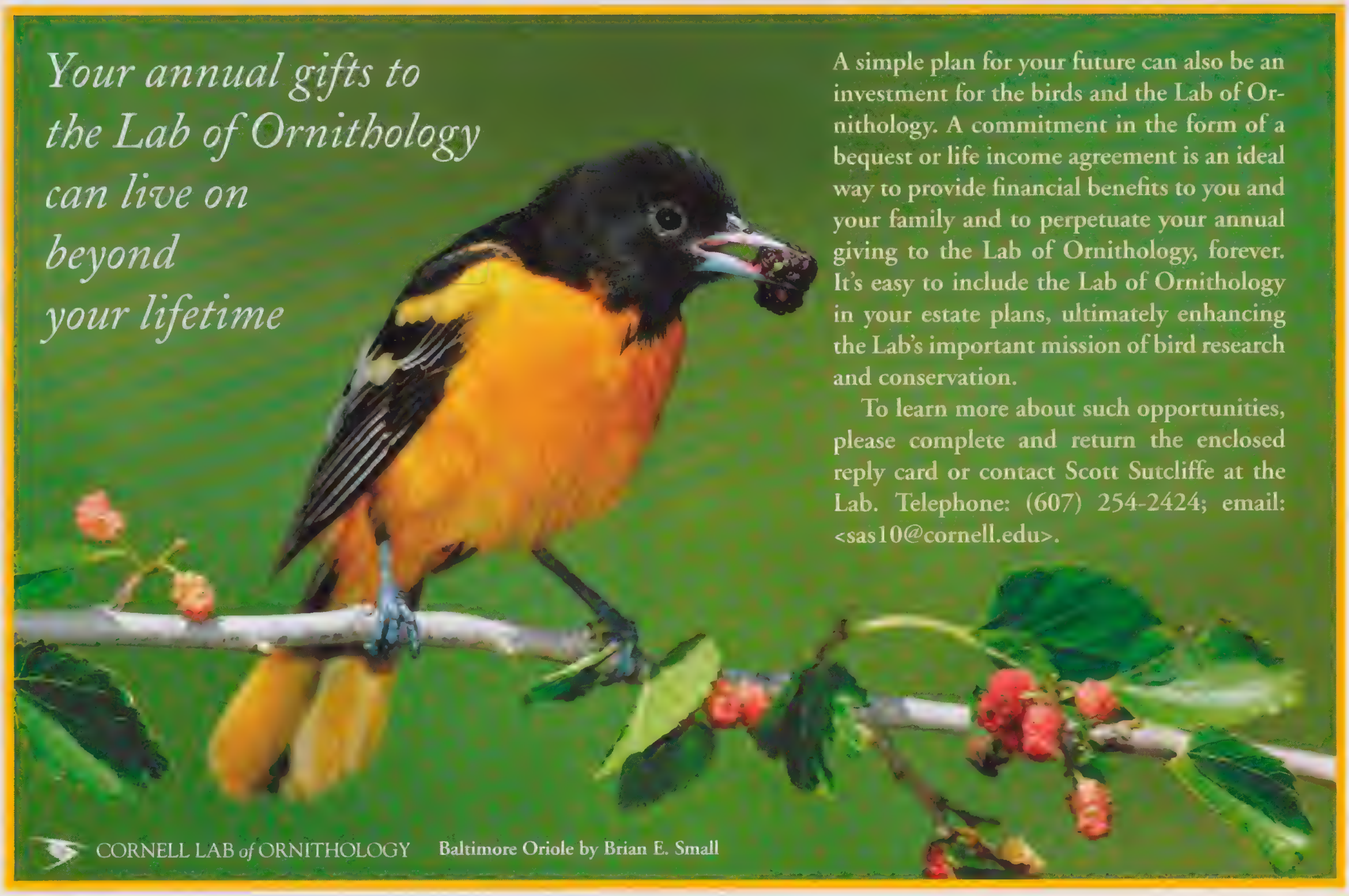

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Baltimore Oriole by Brian E. Small

# How to Destroy Your Binoculars

*by Pete Dunne*

*Illustration by Jeff Sipple*

Nobody could have anticipated this problem. Only a few decades ago birders took pains to keep their binoculars in good working order so they would provide years of service.

No longer. Now, with new-and-improved, super-whiz-bang binoculars appearing every other week, birders who already own quality instruments that don't have the latest technological innovations—coatings that deflect the images of European Starlings and House Sparrows; squishy gel-packed bodies as squeezable as toilet paper—are crying for an excuse to ditch their built-to-serve-a-lifetime glass so they have an excuse to buy the latest and greatest.

But they can't. Their current binoculars work fine. Replacing them will mean hours of negotiation with their conscience, their spouse, or both.

So here, for the benefit of birders suffering new binocular envy, are several proven ways to destroy the binoculars you are using now. I have personally tried every one and will attest to their success.

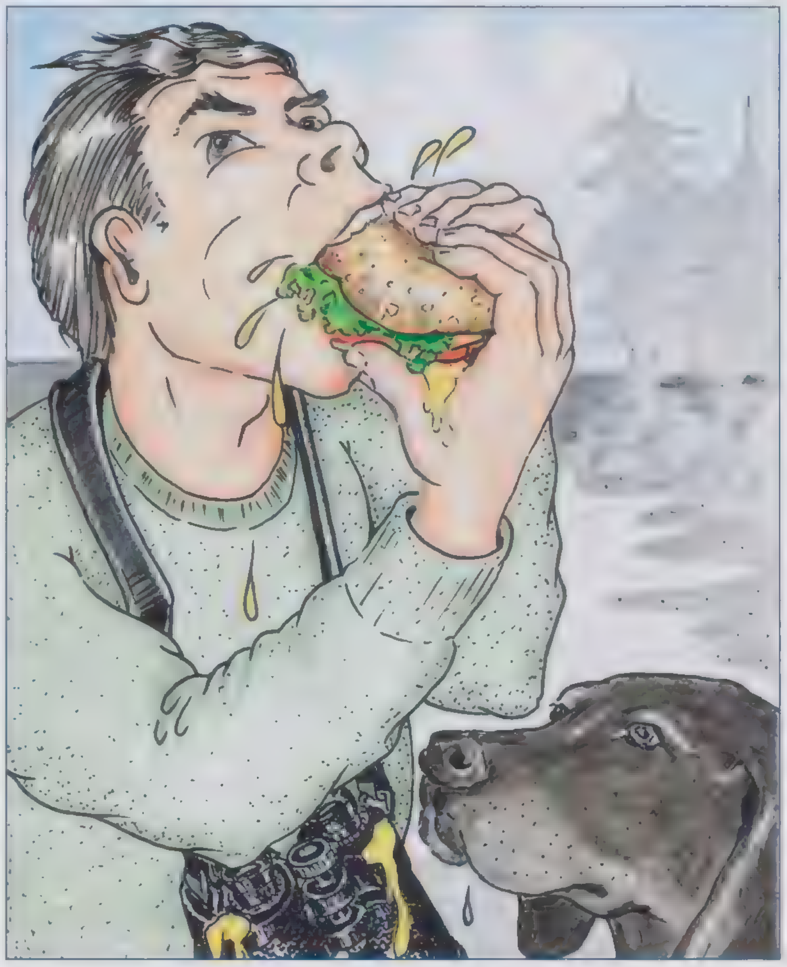
1. The ol' binocular left on the roof of your car trick. Although this used to be the binocular abuser's default setting (the equivalent of the dog eating your homework), unfortunately this is not the fail-safe technique it used to be. There are instruments out there now that can take a standard tumble onto tarmac and survive. In order to achieve maximum damage levels as defined by the new, enhanced, bino-destructo scale, you must place your instrument with barrels parallel to the car roof (i.e., not standing upright) so that you can achieve freeway speeds before the instrument goes airborne. If possible, when backing up to retrieve the wreckage (for insurance purposes), run the instrument over with the tires of your car (more than once if necessary). Make sure that your tires are fully inflated. Where legal, studded tires work best.

2. Clean lenses frequently. Never air blow, prebrush, or whisk the glass. This defeats the purpose. Using an old, unwashed handkerchief embedded with more grit than a two-year-old's comfort blankie, bear down on the lens as hard as you can and work the cloth back and forth. When the sound of glass being scratched by grit abates, shift to a place on the handkerchief with fresh grit and repeat the process until the lens surface resembles a one-eared cat's scratching post.

3. Pack your instrument in a daypack along with a loose-lidded jar of honey. Choose a blazing hot day so the honey will be thin enough to permeate all the working parts of the instrument. If you live in a cool climate, grape or pineapple juice can be substituted but multiple applications might be necessary to ensure a fully fouled instrument. After "discovering" that your binoculars have been marinated through and through, remove them from your daypack and drop them into sand. Then step on them.

4. Go on a winter pelagic trip and stand on the lower deck on the windward side of the boat. Make sure you leave your rain guard at home. Adjust your rain hat so that the water will run off the brim, directly onto the instrument. At the end of the day, wrap the instrument in your wet rain gear. Stow it in the trunk of your car. "Forget" that it is there. (If you don't live near the coast you can get the same results by storing your binoculars in a jar of pickle brine. Add salt to taste.)

5. While scanning for hawks, consume a New-York-deli-sized roast beef sandwich (making sure that half the mayo lands on the glass), then introduce the binoculars to a six-month-old Labrador retriever with the counsel, "Now you be a good dog, Armageddon, and leave these binoculars alone." Leave the room. Make sure the instruments are within reach and remove all doggy toys and rawhide chew things from the vicinity.



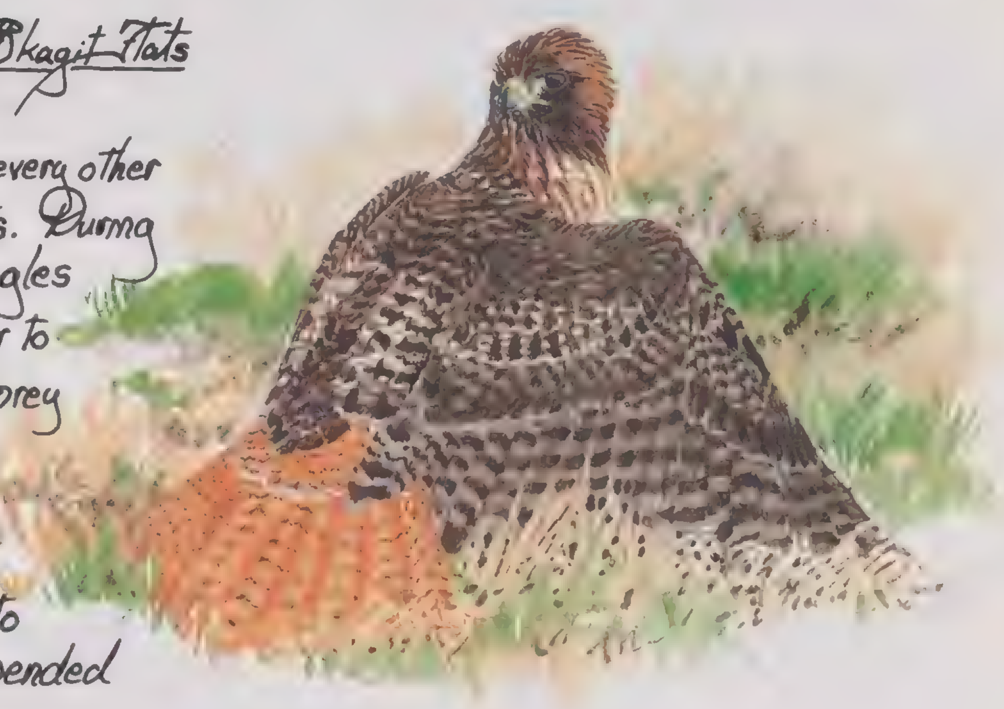
And if all else fails:

6. Loan them to me. I guarantee you'll need new instruments by the time you get them back. ◆

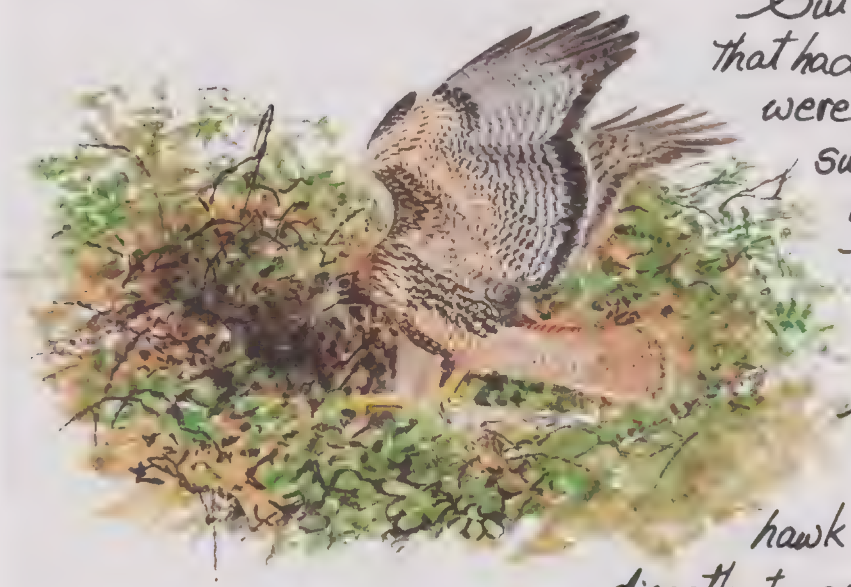
# A Naturalist's Notebook

by John Schmitt

17 February 1994 Washington Skagit Co., Skagit Flats



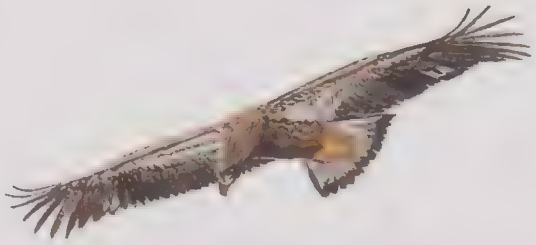
Bald Eagles are the nemesis of nearly every other raptor wintering on the famous Skagit Flats. During our visit we observed many instances of eagles vigorously chasing smaller raptors in order to pirate their prey. And the size of the prey didn't seem to matter; several times we observed eagles force Rough-legged and Red-tailed hawks to jettison their rodent morsels, which were probably too small to compensate the eagle for the energy expended to steal them.



But we observed one adult Red-tailed Hawk that had a strategy to foil the eagles, which on this visit, were quite common. We watched the hawk successfully capture a small rodent in the long yellowed roadside grass. While mantling over its prey, the hawk went nervously back and forth between attending to its prey and peering anxiously in all directions.

Having finally subdued its prey, the hawk abruptly launched into a hurried low flight directly toward a grassy dike where it plunged into the safety of a blackberry vine tangle on the opposite side. Within seconds a hulking dark juvenile Bald Eagle came flying in quick and low and began circling the dike where the hawk had taken cover with its prize. The eagle circled and peered down for a minute or two – even making one stalling descent, which was aborted – but finally it departed, leaving the hidden hawk to dine in peace.

N. J. Schmitt



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# LIVING BIRD

*Summer 2008 Volume 27 / Number 3*

CORNELL LAB *of* ORNITHOLOGY

*Our Mission: To interpret and conserve the earth's biological diversity through research, education, and citizen science focused on birds.*

*Cover:* On a lek in Illinois, an adult male Greater Prairie-Chicken performs his elaborate courtship display, with his pinnae neck feathers erect and breast sacs inflated. Read more about this fascinating species on page 22. Photograph by Richard Day of Daybreak Imagery.

*Back cover:* A Barn Swallow dips its bill into a pond for an in-flight drink. Photograph by Marie Read. For more of her pictures (and for photography tips) see the Picture Perfect column on page 50.

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For spectacular scenic vistas and an exciting array of bird species, this region of the Golden State is unsurpassed.

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LIVING BIRD
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Cornell University

# *Letters*

TOM VEZO

## Arizona Fans

I wanted to thank you for highlighting southeastern Arizona as a great place for bird watching. I heartily agree that this is one of the most spectacular places to visit and bird watch in the United States. Being a year-round resident in the Tucson area, I am fascinated by the Sonoran Desert throughout the year. Yes, even in the 110-degree heat, I marvel at the bird and other animal and plant life, and their tactics for enduring the harshness of summer, the bitter cold of winter, and the extreme storms of monsoon. It is truly an amazing place to see any time of year.

I also wanted to let readers know about the book, *Finding Birds in Southeast Arizona*, published by the Tucson Audubon Society. It is a spectacular resource, written by locals who bird here every day, to help visitors and locals alike find the best birding in the area.

SARA PIKE
TUCSON, ARIZONA

I always enjoy reading about the second love of my life, Arizona, but was disturbed by Mel White's implication (never said outright) that all of southeastern Arizona is in the Sonoran Desert. Most if not all of Cochise County is in the Chihuahuan Desert.

JEAN ARROWSMITH
LINCOLN, VERMONT

## Ocean-hopping Chickens

I enjoyed "How Did the Chicken Cross the Sea?" (ScienceScope, Winter 2008), but I think the author hasn't looked back far enough.

Gavin Menzies has written an excellent book, *1421: The Year China Discovered America*. Although he is not a professional academic, Menzies does provide credible information explaining that Chinese sailors were the source of chickens for both the Polynesians and the Peruvians.

Although some people may think that Menzies has no right to poach on scholarly work, others feel he has made a very thoughtful argument.

DAVID L. ELLISON
EAST BERNE, NEW YORK

## No Plastic Please

I am always delighted when *Living Bird* arrives in my mailbox. It is pictorially beautiful, and I learn something new from each issue before I pass it on to others. However, I was very disappointed to find that the Spring 2008 issue arrived in a plastic bag instead of the usual paper envelope. I strongly urge you to return to the paper envelope because plastic only adds to the growing heap of trash threatening all living beings on our planet.

ELLEN HALLORAN
NEW YORK, NEW YORK

*Thank you for your letter. All of us face the dilemma of trying to minimize our impact on the natural world, and quite often we find ourselves having to choose between the lesser of two evils. Both paper envelopes and poly bags have environmental drawbacks. After careful consideration we decided to switch to a plastic mailer, which is thinner and lighter, offers more protection to the magazines, and uses fewer natural resources to produce than a paper envelope. And the material is 100 percent recyclable. We appreciate your* *opinion and will constantly explore ways to lessen the negative environmental impact of Cornell Lab of Ornithology publications.*

*The Editors*

RON AUSTING

## A Digiscoper's Dream

Ron Austing's review of the Zeiss Digital Camera Adaptor in the Birding Products section of the Spring 2008 issue of *Living Bird* was well done. I would encourage you to do a similar review of the camera shown in the story: the Sony DSC N1 (or its updated version, the N2).

I learned of this camera from a friend a couple of years ago. He had taken his spotting scope to a camera store and systematically tried digiscoping with several available cameras. He found that the Sony was superior, and that it had the useful characteristic of showing no black halo if it was zoomed to 3x when applied to the scope eyepiece.

I have used both the N1 and N2 since then, also with a Zeiss scope, with pleasing results.

DON MOLDE
RENO, NEVADA

## North Slope Oil

I received the Spring 2008 issue of *Living Bird* yesterday. As usual, it is a beautiful magazine. I read with interest the letters that criticized the praise given to President George W. Bush in a recent issue. I am writing to express a somewhat different viewpoint.

*Living Bird* has been concerned about exploration for petroleum on the North Slope of Alaska. Generally speaking, you have opposed this exploration. In my view, your opposition leads to a curtailment in the future supply of petroleum. If you suggest curtailment of supply, I believe that you should also refrain from stimulating the demand for petroleum. You can do this by not running advertisements for birding and wildlife tours. There are 14 such ads in the Spring 2008 issue. My position is that we should explore for oil and natural gas wherever these might be found, with thorough oversight to keep lasting environmental damage to a very low level. I believe that this can be done. I am writing on a day that began with the price of crude oil at $135 per barrel.

HANS W. OSTERHOUDT
SPENCERPORT, NEW YORK

## *From the Editor*

We are pleased to feature an in-depth article in this issue about birding along California's rugged central coast—arguably one of the most scenically beautiful areas in the entire United States, boasting lofty seaside cliffs, towering hillsides, magnificent bays and estuaries, and a staggering array of bird species (see page 42).

I remember my own first birding foray up the Coast Highway as a teenager. I was traveling with friends in a borrowed car, and our journey was endlessly exhilarating: camping out at Montaña de Oro State Park and getting close-up views of Black Oystercatchers and other interesting birds; canoeing in Morro Bay and almost getting stranded in the mud as the tide went out; and driving along Big Sur, viewing spectacular scenery from a terrifyingly high vantage point. I'll never forget that trip, or the days I later spent exploring the Monterey Bay area when I lived in Santa Cruz. This article brought it all back to me and had me longing to go back, to see if things have changed in the nearly two decades since I last visited.

I am particularly happy that Brian Sullivan wrote (and supplied photographs for) the article. Brian is project leader for eBird and the Avian Knowledge Network here at the Lab of Ornithology. He is also one of the top birders in North America and an excellent nature photographer to boot. We have an enormous talent pool at the Lab, and I'm always happy to showcase the work of our staff.

We also have features on Cornell researcher David Winkler's more than two-decades-long study of Tree Swallows; a tiny remnant population of Greater Prairie-Chickens in Illinois; a 100th anniversary salute to Roger Tory Peterson, the most beloved and iconic figure in the history of birding; and a host of columns and departments. I hope you enjoy the selection. Please visit our web site www.livingbird.org to provide comments or complaints or write to us at the address below.

*Tim Gallagher*
*Editor-in-Chief*

We welcome letters from readers. Write to The Editors, *Living Bird*, 159 Sapsucker Woods Road, Ithaca, New York 14850, or send email to livingbird@cornell.edu.

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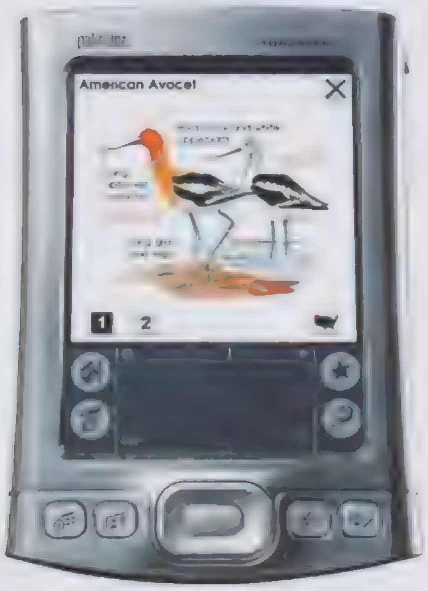

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Qingyu has spent her adult life negotiating the sometimes murky waters of China tourism for both foreigners and Chinese nationals. For the past five years she's handled these tasks for us with humor, panache and when necessary toughness. Time and again Qingyu has worked wonders, such as when our minibus drivers refused to travel a muddy road and she, on the shortest of notice, found fishing boats to take us upriver to our destination, and a public bus willing to return us home by road and on our schedule.

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## Ken Rosenberg receives Eisenmann Medal

The Cornell Lab of Ornithology's director of Conservation Science, Ken Rosenberg, is being awarded the Eisenmann Medal by the Linnaean Society of New York. Awards committee chair Helen Hays says, "Ken is being recognized for excellence in ornithology but also for taking the time to help amateurs, work with amateurs, and involve amateurs in ornithological projects. We thought he was perfect for this award."

Ken's professionalism and dedication are no secret to those who work with him. Lab director John Fitzpatrick has known Ken for a long time. "Ken has been a real workhorse for bird conservation in North America since coming to the Cornell Lab in the early 1990s," Fitzpatrick says. "He has an uncanny ability to work in partnership with public agencies and not-for-profit conservation groups. His focus consistently is on ensuring that conservation priorities be based on science. He's become one of the most trusted and sought-after individuals in North American bird conservation."

Ken, who is the latest in a long line of distinguished ornithologists to receive the award, says, "It was a complete surprise. I am honored to be listed in such august company as Ernst Mayr, Olin Pettingill, Roger Tory Peterson, David Sibley, and of course, John Fitzpatrick."

The award is named for the late Eugene Eisenmann—lawyer, author, researcher, and ornithologist at the American Museum of Natural History. The Eisenmann Medal will be presented to Ken at the Linnaean Society's annual dinner on March 10, 2009. Congratulations Ken!

—*Pat Leonard*

GERRI JONES

*Andy Goldsworthy (above left) stands with Fiona Cundy, David Krause, Ned Shalanski, and Rodney Griffiths at the cairn.*

## The Sapsucker Cairn

The latest work by internationally acclaimed environmental artist Andy Goldsworthy is tucked away in a quiet corner of Sapsucker Woods Sanctuary—a stone cairn standing sentinel beside the trail. Goldsworthy built the cairn out of locally quarried stone, assisted by Cornell students from a variety of programs.

"It's a great location," he says. "You get a real feel for a place. It fits in well conceptually with what I've done at Cornell."

The cairn is a recurring form in Goldsworthy's work. He has created them out of tree branches, ice, and stone. But "Sapsucker Cairn" might be the last one he makes, because Goldsworthy feels he's taken the form as far as it can go. "It may rear its head again," he says, "but it would have to be something that would push the idea in a new direction."

Goldsworthy, who is English but has lived and worked in Scotland for 22 years, is well known for building sculptures using only natural materials—be they a curtain of intricately woven branches linked with thorns, a carpet of brilliant yellow leaves, or sinuous extensions of a tree's natural roots made of mud and moss. The textures of natural substances seem to fascinate him. He studies how they feel, how they react to wind, rain, sun, human hands . . . and time.

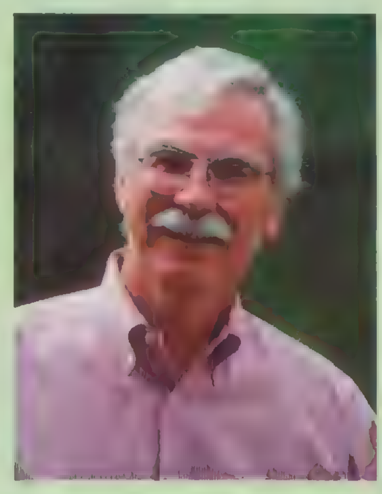
"I'm attracted to the aesthetic of decay in his work . . . and all the tensions that are in that," says Cornell senior Shern Kier, who assisted Goldsworthy on the cairn and other projects. Goldsworthy says his work is an ongoing effort to come to grips with impermanence and the relentless force of time. Photographs are an important part of the process. They capture the changing

# *The View from Sapsucker Woods*

Some of the most biologically encompassing conservation projects require difficult compromises to reconcile the competing demands of disparate stakeholders, in a process recalling the sausage factory: we appreciate the product, but prefer not to watch the messy process of making it. This is not science, it is human communication, but in the best such negotiations scientific integrity takes center stage, guiding the outcome while economic, political, social, and philosophical forces vie to influence the result.

A superb example of this process recently was announced in California at a ceremony featuring Governor Schwarzenegger and several major conservation organizations. At stake was the fate of Tejon Ranch, the largest and most biologically diverse piece of contiguous private property in California. For two years, representatives of five conservation organizations and the Tejon Ranch Company met confidentially (with science support from the Conservation Biology Institute and South Coast Wildlands) to hammer out a deal everyone knew would be controversial. The challenge: find a way to preserve the unparalleled natural beauty and rich biological diversity of this 269,000-acre (430-square mile) ranch in light of the company's plans to build thousands of homes, plus hotels, condominiums, golf courses, and commercial developments in this once-pristine wilderness.

The precedent-setting deal commits the Tejon Ranch Company to a sweeping array of conservation measures covering up to 90 percent of the ranch, including conservation easements and dedicated open space on 178,000 acres, an option to purchase easements on an additional 62,000 acres, and immediate management actions to protect existing conservation values of these 240,000 acres. The company will provide substantial funding to establish an independent Tejon Ranch Conservancy to manage and restore the landscape, plus a permanent funding source through a transfer tax on the sales of lots and homes. Thirty-seven miles of the Pacific Crest Trail will be reconfigured to allow hiking across the ranch, a plan for public access will be developed, and the parties to the agreement will work to establish a state park. In exchange, the conservation organizations (Audubon California, Natural Resources Defense Council, Sierra Club, Planning and Conservation League, and Endangered Habitats League) agreed not to oppose the landowner's efforts to obtain development permits over which these organizations would otherwise have gone to war.



Critics immediately slammed the agreement, citing "poison pill" provisions and "greenlights [for a] a behemoth city on the last wild edge of Los Angeles County." The presence of a reintroduced population of endangered California Condors, and prior designation of the ranch as "critical condor habitat," made the agreement especially controversial. However, Tejon Ranch Company did engage three of the world's foremost condor experts in the negotiations, and then agreed to numerous provisions to ensure that most condor habitat on the ranch would remain wild and safe for condors.

The Tejon Ranch Company, its development partners, and the conservationists recognized the high stakes and chose to negotiate in good faith, listening and communicating with science at the forefront. The developers sought a predictable and positive outcome by engaging directly with conservation organizations that would otherwise legally challenge their projects. The conservationists recognized a key opportunity to negotiate a comprehensive vision with a single landowner, rather than wait until piecemeal sales led to years of expensive legal battles against numerous development projects, under uncertain future regulatory conditions. Negotiations produced true landscape-scale conservation: long-term protection for an immense and ecologically crucial mosaic of ecosystems, at the expense of significant but geographically circumscribed developments along the Interstate 5 corridor (which still must undergo standard regulatory review).

I can only imagine what it must have been like inside this sausage factory, but as a conservation scientist I applaud all those who recognized the non-scientific realities of accomplishing such a large-scale agreement. Would that more such efforts be launched, in place of courtroom brawls.

*John W. Fitzpatrick*
*Louis Agassiz Fuertes Director*

JON REIS

shapes of ephemeral works as they break down and eventually disappear.

Goldsworthy says there are "loads" of materials he hasn't tried yet. "It would be interesting to make something out of maple syrup. There are so many materials I haven't worked with, and a lot of materials I haven't worked well with yet."

The construction of "Sapsucker Cairn" was funded by the Program for Andrew D. White Professors-at-Large. The program began in 1965 to bring distinguished scholars to Cornell to interact with students and faculty.

During a public lecture in Kennedy Hall, Goldsworthy talked about projects he's done with Cornell students during his eight years as a Professor-at-Large—works created at the Metropolitan Museum of Art, The Neuberger Museum of Art, the National Gallery of Art, private installations, and Sapsucker Woods.

"It's been one of the most unique experiences I've had at Cornell, getting to meet and work with Andy," said Kier. "I felt like I had the opportunity to be brought into a different world."

Goldsworthy produced many ephemeral works on campus, using brilliant red and golden leaves, which are long since gone. Four replacement boulders for his Garden of Stone installation are on indefinite loan from the Museum of Jewish Heritage in New York City and can be found at the east end of the F. R. Newman Arboretum at Cornell. Garden of Stone, which is permanently installed at the Museum of Jewish Heritage in New York, honors victims of the Holocaust, and comprises living trees springing from 18 large granite boulders.

If you visit Sapsucker Woods, you can find the cairn by following the Hoyt-Pileated Trail, which begins across the road from the Lab of Ornithology's main entrance. The cairn is on the right, a few minutes' walk down the trail.

*—Pat Leonard*

## Cerulean Warbler Conservation Award

The Cornell Lab of Ornithology was recognized recently for its efforts to reverse the drastic decline of the Cerulean Warbler. With partner organizations in the El Grupo Cerúleo coalition, the Lab received the 2008 "Wings Across the Americas" International Cooperation Award from the U. S. Forest Service. El Grupo Cerúleo is a unique partnership that includes government, non-government, and academic institutions, and was created by the Cerulean Warbler Technical Group. To address the need for hard data about the warbler's winter range in South America, the Lab and its partners launched the Priority Migrant eBird project in late 2006.

Lab ornithologist Sara Barker and El Grupo Cerúleo members developed Priority Migrant eBird at a Cerulean Warbler Summit in Ecuador in 2005, and with the help of the Lab's Information Science group and the U. S. Fish and Wildlife Service it became a reality.

The data from project participants are being used to create better winter range maps for Cerulean Warblers and will ultimately be used to develop guidelines for management, protection, and conservation carried out by South American organizations.

Cerulean Warbler number have dropped by an estimated 50 percent, according to the North American Landbird Conservation Plan issued by Partners in Flight. Loss of the mature forests used by the species is behind the decline. Despite these dire circumstances, the united effort of so many people across the Western Hemisphere may yet halt the downward spiral of this small blue bird.

To find out more about Priority Migrant eBird, visit www.ebird.org/primig.

*—Pat Leonard*

TOM IRACI/U.S. FOREST SERVICE

*At a ceremony in Phoenix, Arizona, Joel Holtrop of the U. S. Forest Service (at right) presented awards to (from left to right) Paul Hamel of the U. S. Forest Service, Jennifer Baldy of the University of Memphis, Ken Rosenberg of the Lab of Ornithology (accepting the award for Sara Barker Swarthout), and Tom Will of the U. S. Fish and Wildlife Service for their efforts to conserve Cerulean Warblers.*

JULIA DIEBOLD

The Sapsuckers—the Lab's famed big-day birding team—faced fierce competition this past May 10 in New Jersey's annual World Series of Birding. Despite finding a whopping total of 222 species in this grueling 24-hour statewide birding marathon, the team came in second to the Lagerhead Shrikes of the Delaware Valley Ornithological Society, who located 229 species. Also tying for second place were the Raven Luna-Ticks of the Connecticut Audubon Society. But thanks to our members and friends (and team-sponsor Swarovski Optik, who paid all team expenses), the Sapsuckers raised more than $190,000 in pledges, all of which will be used for bird conservation efforts. This year's Sapsuckers (from left to right): Marshall Iliff, Tim Lenz, Ken Rosenberg, Chris Wood, Andy Farnsworth, and Brian Sullivan.

## *Remembering Roger*

STEVE KELLING

We are saddened to report that Roger Slothower, the Lab of Ornithology's GIS and mapping specialist, passed away suddenly on May 18, 2008, near his home in Ithaca while walking to work. Roger had been a core member of the eBird team since the project's inception in 2001 and created all of the maps on eBird web sites, as well as many for other Lab projects. A graduate of Earlham College, he went on to receive a Master's degree from the University of Oregon and a Ph.D. from Cornell University.

Roger brought a buoyant spirit to the eBird team and the entire Lab of Ornithology. He loved people and the natural world, and he generously shared his enthusiasm with those around him. His loss has left a tremendous void in the Lab staff, though the memory of his welcoming smile and enthusiastic, positive spirit will live on in each of us. Roger is survived by his wife Cyndi, daughter Molly, and sons Sam and Peter.

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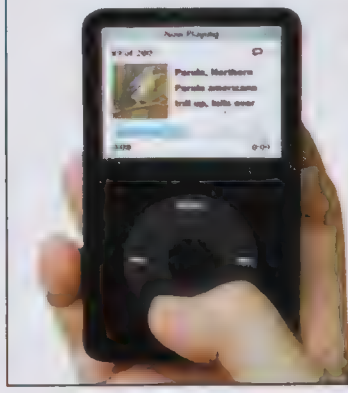

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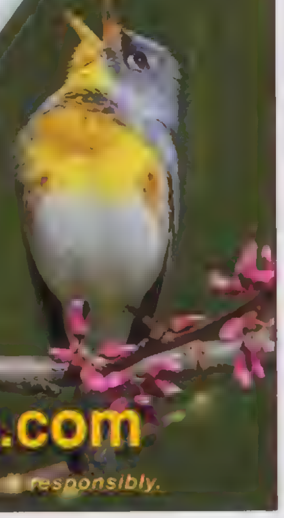

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# Dietary Surprises of Western Sandpipers

Have you ever watched a flock of sandpipers pecking furiously at a mudflat and wondered what they could possibly be eating? As you might predict, most foraging shorebirds are gleaning small invertebrates such as marine worms and small crustaceans from the mud. But not always: new research on Western Sandpipers has discovered that these birds rely heavily on a previously unsuspected food source.

This surprising sandpiper food is not a clam, a worm, or another small animal but rather the so-called biofilm that grows as a mat on the surface of the mud. Biofilms are a rich goo of microscopic bacteria, detritus, and sediment, along with compounds secreted by the bacteria that give the substance a mucus-like consistency. The mudflat biofilms eaten by sandpipers are challenging to feed upon because they are very thin—usually much thinner than the paper on which this magazine is printed.

BRIAN SULLIVAN

A group of researchers from Japan, France, and Canada had looked closely at the bills of Western Sandpipers and Dunlins and found specialized structures that might allow the birds to graze on biofilms. To test their suspicions, they studied Western Sandpipers feeding on mudflats during spring migration. Using high-speed video, the research team documented how these birds consume mudflat biofilms.

When eating biofilm, the birds move more slowly than they do when eating invertebrates, because there is no need to sneak up on the immobile biofilms. The birds simply place their open bill tips on the surface of the mud and collect a tiny ball of biofilm, then raise their still slightly open bill out of the mud and swallow the droplet, leaving behind tiny doubled impressions of their bill tips on the surface of the mudflat.

Even with the video evidence for this newly documented type of feeding, it was still possible that the birds might really just be consuming minute invertebrates contained within these tiny mudballs. To prove that the sandpipers were eating bacterial biofilm, the researchers used a series of chemical assays to calculate how much of the sandpipers' overall food energy was derived from biofilms. Like plants, the bacteria in biofilms are primary producers, and this gives them a characteristic chemical signature along with a high abundance of proteins such as chlorophyll that aren't found in most invertebrates.

These comparisons showed that migrating Western Sandpipers garner up to half of their daily energy from eating biofilms. Western Sandpipers are one of the world's most numerous shorebirds, and mudflats in calm waters are nearly ideal growing conditions for biofilms. The researchers speculate that the spectacular abundance of Western Sandpipers may stem from their unusual ability to feed on this plentiful resource.

*—Irby Lovette*

*Ecology* 89, 599-606.

# How Salmon Help Songbirds

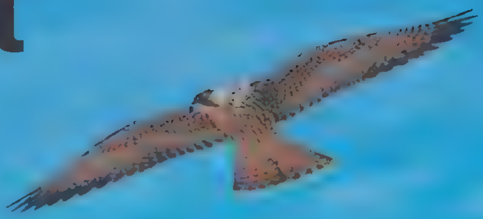
In coastal British Columbia, some rivers support huge runs of spawning salmon, but other nearby rivers have waterfall barriers near their mouths that keep salmon out. You might reasonably expect to find more fish-eating birds such as Ospreys or Bald Eagles along the rivers with the largest salmon runs. But what about birds that don't eat salmon? A new study provides robust evidence for the surprising finding that songbirds such as Winter Wrens, Varied Thrushes, and Golden-crowned Kinglets are also more abundant along salmon rivers.

These songbirds live predominantly in the forest, and they are clearly not eating salmon directly, so how could the presence of salmon in any way influence their riverside population densities? One possibility is that rivers with salmon are simply different in some undocumented way from rivers without salmon, and that the higher abundance of songbirds along the salmon rivers has nothing to do with the salmon themselves.

Fortunately, subtle variation among nearby rivers can be used to rule out the possibility of a spurious relationship between songbirds and salmon. Some rivers with waterfalls adjacent to the sea lack salmon entirely, whereas nearby rivers with otherwise very similar topography have their first waterfalls a few miles upstream, and these rivers support thriving salmon runs in their lower reaches. Thus it is possible to compare bird densities among salmon-free and salmon-rich rivers, and also above and below salmon-blocking waterfalls on a single river.

These comparisons show that five of the six most common songbirds found along these British Columbia rivers are more abundant where salmon are also abundant. The only exception is the Chestnut-

# The Moment of Truth



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backed Chickadee, which has similar densities at both kinds of sites.

Further consideration of this finding suggests that it is perhaps not as far-fetched as it at first might seem. There are at least two ways in which salmon runs might drive up songbird densities. The first is by directly increasing the abundance of the insects upon which these birds feed. Decaying salmon carcasses provide rich food for midge and fly larvae, and the densities of these insects are known to be significantly higher along salmon streams. Insect-eating birds might well do better in areas where the salmon cause these particular insects to be abundant.

The second and perhaps more intriguing possibility is that the salmon influence the birds indirectly by enriching the entire riverside habitat. Because these anadromous fish live most of their lives in the sea but move up rivers to spawn and die, salmon take nutrients and energy from the ocean and transport them back upstream. Salmon carcasses enrich the streams where they die, and many carcasses are also spread around the adjacent forest by floods, predators, and scavengers.

The pulse of nutrients that the dead salmon provide thereby increases the productivity of the entire riverside habitat: increased nutrients from salmon cause greater plant growth, which supports greater fruit production along with more plant-eating insects, which in turn supports more songbirds.

The bodies of the birds themselves provide further support for this hypothesis: Winter Wrens that live along salmon streams carry a distinctive molecular signature in their tissues that is characteristic of nutrients derived from the sea. The annual spawning runs of salmon up the river are therefore the essential link in a chain of relationship connecting the ocean with deep-forest songbirds.

—*Irby Lovette*

*The Auk* 125, 51-59.

## Gannets Addicted to Junk Food

Many kinds of seabirds have learned that fishing boats provide a plentiful food supply when fish parts and other bycatch are discarded into the sea. Near shore, it is often gulls that scavenge these wastes, but farther out at sea, birds such as albatrosses, skuas, petrels, and frigatebirds also follow commercial fishing vessels to feed upon their refuse. For some seabirds, fishing waste is a boon, sustaining much larger populations than could persist without this type of artificial provisioning. For other species, however, fishing waste is at best a mixed blessing.

ANGUS WILSON

Cape Gannets that breed on islands off the coast of Africa provide an example of how abundant commercial fishing waste can be both a positive and a negative, even for a single species. These gannets feed in the waters off the western coast of South Africa and Namibia, where the upwelling of nutrient-rich currents supports a marine ecosystem replete with small fish such as sardines and anchovies and the larger fish that prey upon them.

These rich waters have attracted fleets of commercial fishing vessels as well as flocks of gannets, and over time the fish stocks have declined. Adult gannets have learned to follow fishing boats to feed on parts of large fish that are discarded during processing. Many of these fish would have been too large for the gannets to capture themselves, and in this way the fishing boats are giving the gannets access to food that would otherwise not be available to them. In some months, fishing waste makes up more than 80 percent of the adult gannets' diet. The abundance and steady supply of this artificial resource contributes to their very high survival rate as adults.

Problems arise, however, during the gannets' breeding season. Although the fishing waste is a good food resource for adult gannets, it is much lower in calorie content than the small, oily fish that the gannets prefer to feed to their offspring. Growing gannet chicks fed on fishing waste do poorly. Parent gannets seem to know this: data-loggers that track their foraging movements show that parents with chicks make many more dives seeking live fish than do non-breeding adult gannets.

The depletion of the anchovy and sardine stocks by overfishing has lowered the foraging gannets' success rates, however, and most chicks are fed predominantly on fishing waste despite the best efforts of their parents. In some years, the gannets' continued reliance on this low-quality food during the breeding season results in the death of nearly all of the chicks in their colonies. The researchers who have studied this issue refer to this problem as the "junk-food" phenomenon, speculating that the easily obtained but low-quality fishing waste is adequate for the parents but highly detrimental to young gannets.

—Irby Lovette

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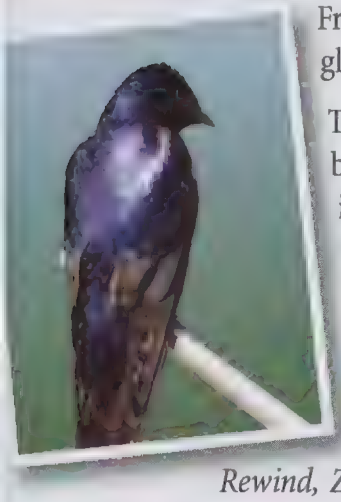

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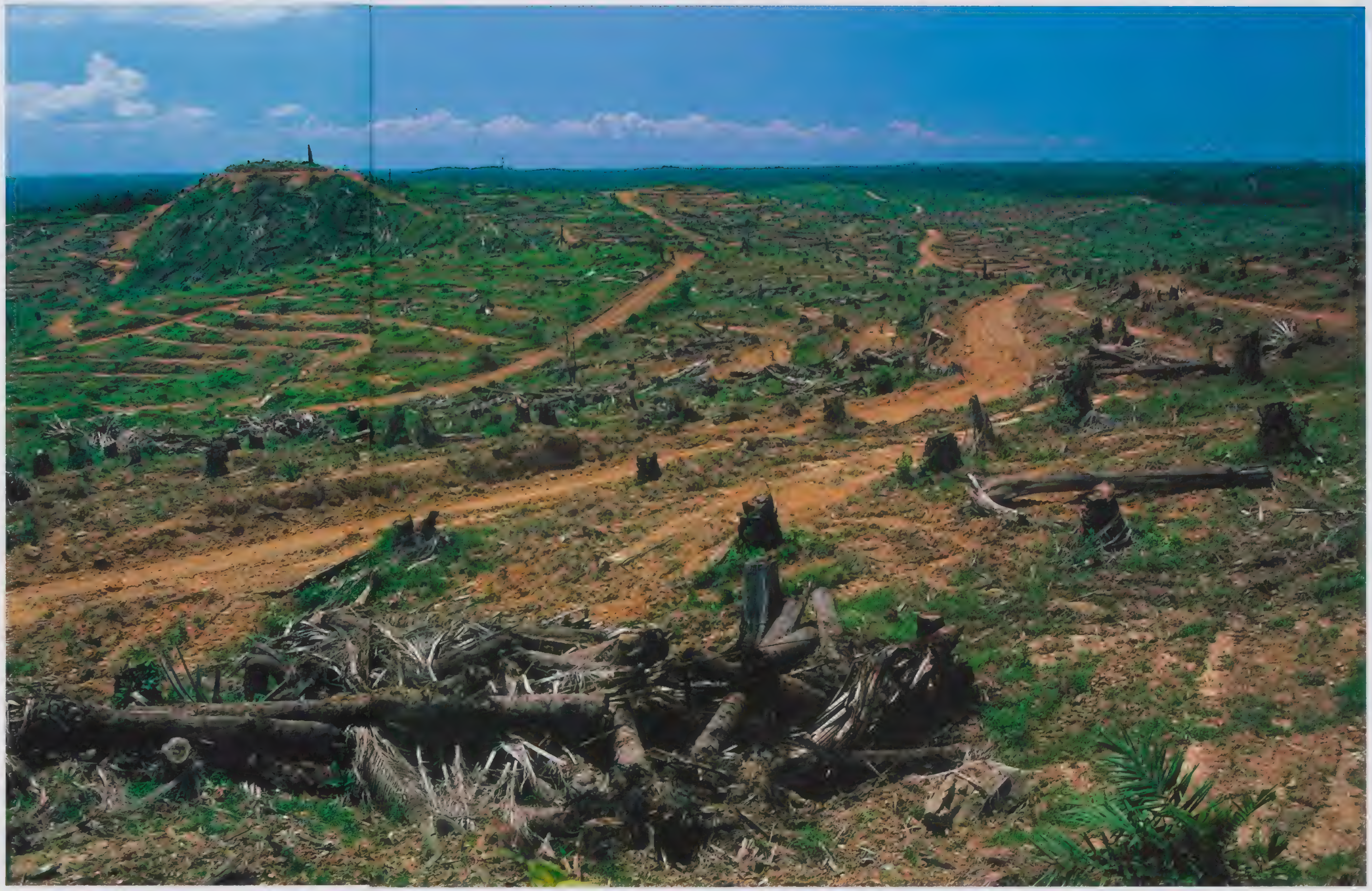
# The Oil Palm Dilemma

by David S. Wilcove

## *Slipping toward extinction, one potato chip at a time*

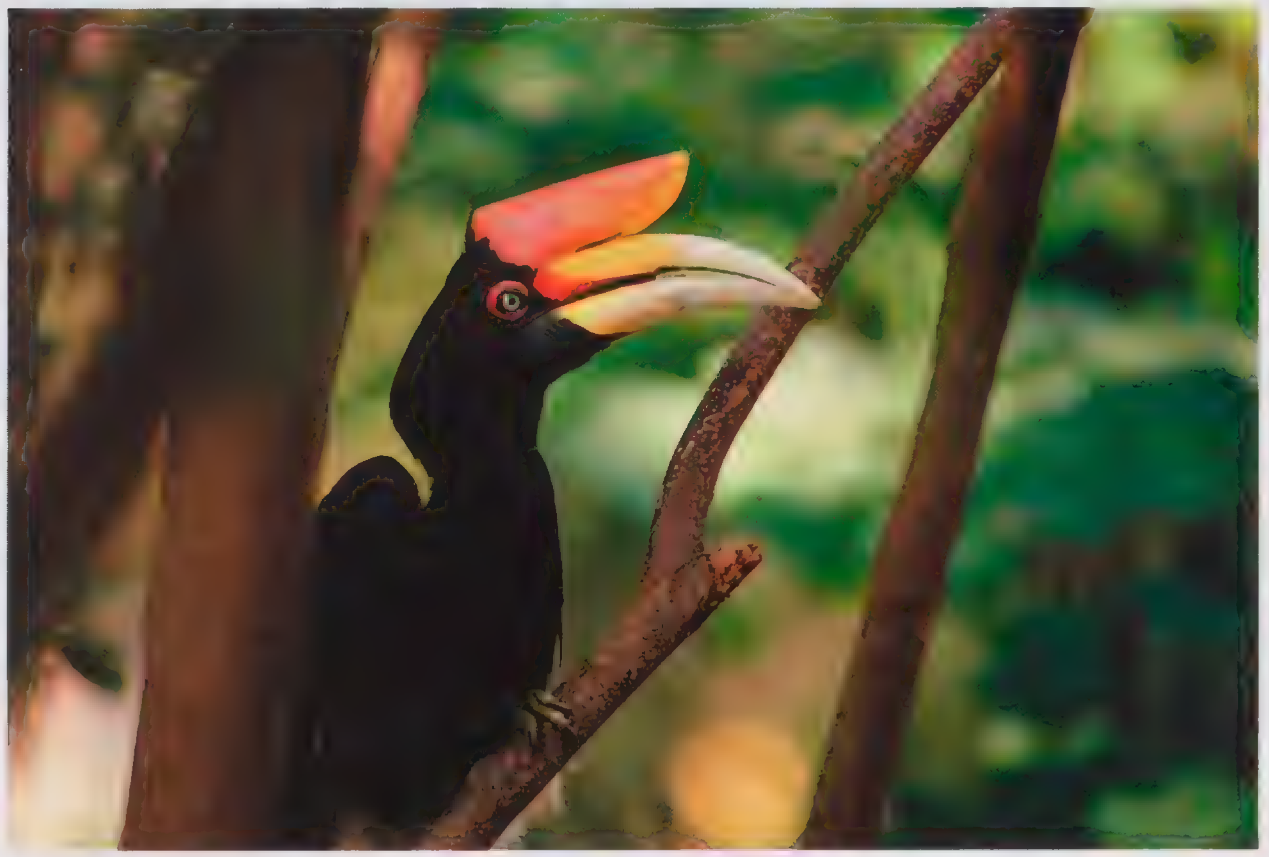
Stuck behind a slow-moving truck, its flatbed filled with the trunks of giant trees, I had plenty of time to contemplate just how much damage the logging companies had done to this particular part of Borneo. The hillsides were still covered in forest, but the remaining trees were small and spindly, nothing like their dead brethren in the truck. I was depressed by the absence of big trees. Suddenly, a flock of enormous, black birds flew across the road and landed in the tallest remaining tree. "Rhinoceros Hornbills!" I shouted, "Stop the car!" The driver obediently slammed on the brakes, sending a pile of books, backpacks, and passengers from the back seat to the front seat. Slightly battered and bruised, we piled out of the car and fumbled for our binoculars.

The Rhinoceros Hornbill surely ranks among the world's most spectacular birds. An adult male weighs in excess of five-and-a-half pounds and, from bill tip to tail tip, is about a yard long. Glossy black with gleaming white thighs, it has a long yellow bill with a magnificent orange-red casque that curves upward like a rhino's horn (hence the name). When it flies, its broad wings make a deep "whooshing" sound that some observers liken to the noise of an airplane passing overhead.



THOMAS MARENT/MINDEN PICTURES

*Millions of acres of forest in Indonesia and Malaysia have been cleared to make way for palm-oil plantations, threatening Rhinoceros Hornbills (below) and other rare species.*



GERRY ELLIS/MINDEN PICTURES

Soon, the half-dozen hornbills were joined by another group, then another, and still more groups, until a total of 34 "rhinos" had piled into the big tree. They lingered for only a few minutes before taking flight again and disappearing into the forest.

The sight of all those hornbills both thrilled and puzzled me. With little prior knowledge of Southeast Asian birds, I had expected to find them in the oldest and least disturbed forests. What were they doing here, in a place where virtually all of the big trees had been removed? As we continued our drive, the forests petered out entirely; the trees were replaced with thousands upon thousands of acres of oil palm. Within these oil-palm monocultures, there were no hornbills; in fact, there were few birds of any sort.

The contrast between these two scenes—a logged-over forest with hornbills and a sea of oil palms—highlights a huge and largely unrecognized (in the United States at least) threat to biodiversity. It is the story of an impending ecological disaster in Southeast Asia: extinction by potato chip, cookie, and cooking oil.

Oil palm is now one of the most rapidly expanding crops in the world. Between 1961 and 2006, oil-palm cultivation increased globally from less than 9 million acres to more than 32 million acres. The two biggest producers of oil palm are Malaysia and Indonesia. Both countries harbor large expanses of tropical forests, forests rich in endemic plants and animals. Yet across Southeast Asia, those forests are disappearing at a rapid rate (faster, in fact, than forests are disappearing in South America), raising concern that thousands of species in Asia could be driven to extinction.

In recent years, environmentalists have directed much of their fury at the oil-palm industry, charging it with clearing forests to plant oil palm. The oil-palm industry, in turn, has responded with a two-part defense. First, it asserts that for at least the past 15 to 20 years, the expansion of oil palm has not come at the expense of forests. Instead, oil palms have been planted on

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lands that had previously been converted to rubber plantations, commercial crops, pastures, and other uses. Second, the industry argues that, contrary to the claims of environmentalists, oil-palm plantations are not sterile monocultures; instead, the plantations are actually beneficial for biodiversity, more akin to a "planted forest" than a crop.

Lian Pin Koh, a graduate student at Princeton University, and I decided to take a critical look at both assertions. To determine whether forests are being cleared to make way for oil palm, we examined national land-use data collected by the governments of Malaysia and Indonesia and compiled by the Food and Agriculture Organization (FAO) of the United Nations. The results were striking: between 1990 and 2005, the acreage of rubber, cropland, and pasture in both countries decreased. However, that decrease is far too small to account for the huge expansion of oil palm that has occurred over the same period. In other words, both countries must have cleared millions of acres of forest for oil palm to account for all the land that has been placed under oil-palm cultivation since 1990. Indeed, our analysis indicates that more than half of the oil-palm expansion in Malaysia and Indonesia during this 15-year period had to come from forests.

*The sight of all those hornbills both thrilled and puzzled me. I had expected to find them in the oldest and least disturbed forests. What were they doing here, in a place where virtually all of the big trees had been removed?*

But which forests? The FAO data also indicate that the amount of primary or virgin forests in Malaysia did not decrease during this period. If so, then the forests that were cleared to make way for oil palm must have been secondary or logged forests, forests not unlike the spot where I saw the Rhinoceros Hornbills. (We lack comparable data for Indonesia).

Of course, if logged forests have little value for biodiversity, then their conversion to oil palm would not be too alarming. This brings us to the second question: What is the biodiversity value of primary and secondary forests compared with oil-palm plantations? Are oil-palm plantations the biological deserts portrayed by many environmentalists, or are they more akin to forests, as the oil-palm growers assert? A flock of hornbills here or there is hardly sufficient evidence to answer this question. To tackle this issue, we compared the abundance of forest-dwelling birds and butterflies in primary forests, secondary forests, and oil-palm plantations. Compared with most other types of animals (such as mammals, beetles, etc.), birds and butterflies are relatively easy to identify and count, making them ideal for this sort of comparison. The bird data were gathered in Peninsular Malaysia and published by ecologist Kelvin Peh and colleagues; the butterfly data were obtained by Keith Hamer, A. J. Dumbrell, Lian Pin Koh, and others in Sabah, Borneo.

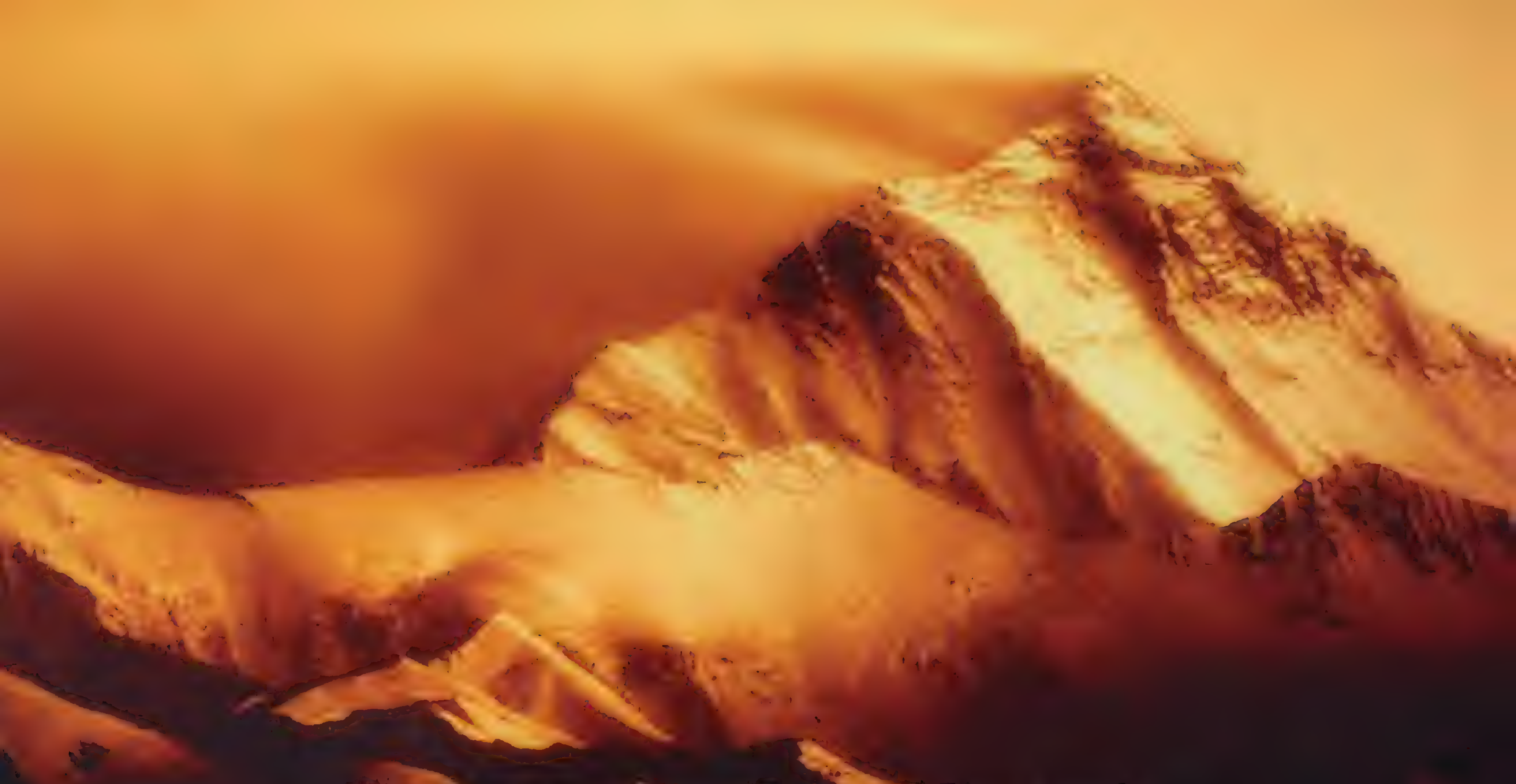
Both birds and butterflies showed very similar patterns. The number of forest-dwelling species was lower in the secondary forests than in the primary forests. Clearly, the cutting of the big trees renders the forest unsuitable for some species. However, a far bigger drop in biodiversity occurs when a secondary (logged) forest is converted to an oil-palm plantation. Roughly three-quarters of the remaining forest-dwelling bird and butterfly species disappear. Protection of these disturbed forests is therefore crucial to the survival of Southeast Asia's beleaguered wildlife. But it won't be easy.

Oil palm is a highly profitable export crop for Malaysia, Indonesia, and other developing countries. In addition, many of the large plantations provide housing, medical care, education, and other vital benefits to workers and their families. For these reasons, it is unlikely that the governments of the countries in question would be keen to curtail growth of the oil-palm industry. Moreover, palm oil is used throughout Asia as cooking oil. It is also used around the world as an ingredient in countless food items and household products, from potato chips to margarine to dishwashing liquid to lipstick. (Indeed, it is listed as an ingredient in the chocolate-chip cookies I'm eating as I write these words). The fact that palm oil is used in so many ways and in so many places makes it a tough product to avoid. Moreover, with the rise in petroleum prices, interest in using it as a biofuel is growing, a development that could hasten the creation of new plantations.

Pressure from American and European stockholders on companies involved in the oil-palm business may prompt those companies to halt further conversion of forests. And dialogue between the more progressive oil-palm companies and environmental organizations could lead to the development of guidelines for a more sustainable palm-oil industry. The latter, at least, appears to be happening under the aegis of the Roundtable on Sustainable Palm Oil. The roundtable aims to bring together companies, environmental organizations, and other partners in an effort to create a more sustainable future for oil palm. One hopes that forest conservation is at the top of the list of issues they intend to tackle. In the meantime, Southeast Asia's hornbills and other wildlife are slipping closer to extinction, one potato chip at a time. ◆

### *Further Reading*

Lian Pin Koh and David S. Wilcove. "Is oil palm agriculture really destroying tropical biodiversity?" *Conservation Letters*, in press (2008).



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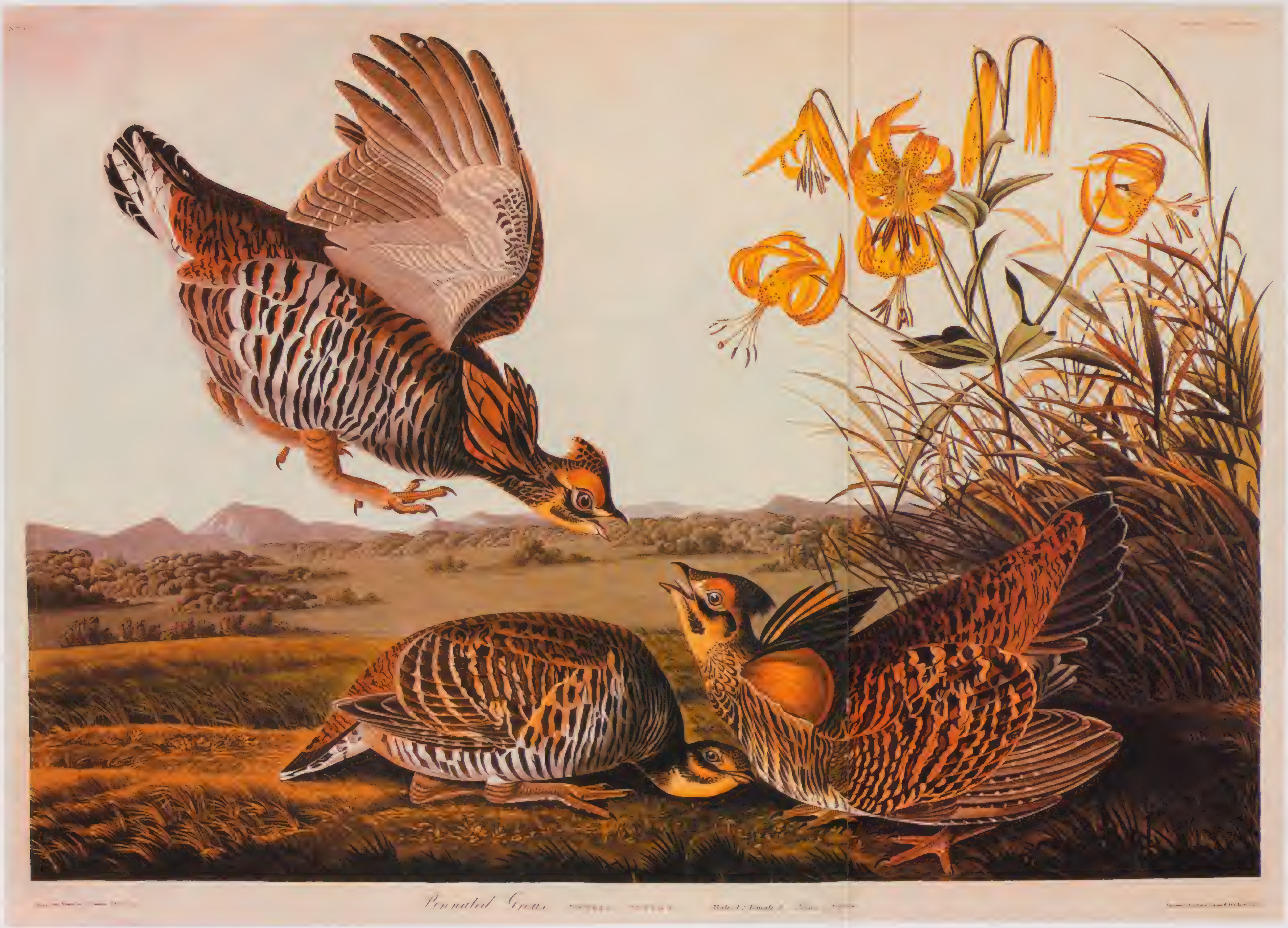
# THE "PRAIRIE HENS" OF ILLINOIS



Two male Greater Prairie-Chickens spar on a lek in John James Audubon's well-known painting. At right, famed author Mark Twain rated Illinois "prairie hens" as one of his favorite foods.

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### by Andrew Beahrs

## *Mark Twain's favorite birds . . . to eat*

Toward the end of a long 1878 European tour, Mark Twain wrote a fantasy menu consisting of all his favorite American foods. Along with predictable fare such as southern-style fried chicken and hot corn bread, the menu included the arrestingly specific "prairie hens, from Illinois." Doubtless Twain had heard the haunting, booming cries of Greater Prairie-Chickens on leks near his uncle's Missouri farm, or even while berthed on the steamboats he learned to pilot as a young man. But he remembered best the millions of birds

Courtesy Clifton Waller Barrett Library of American Literature, Special Collections, University of Virginia Library

From behind the plywood blind comes a mournful, hollow cry, like someone blowing across the lip of a jug. It's the eerie, unmistakable booming of a prairie-chicken cock, answered almost at once from the far side of the lek.

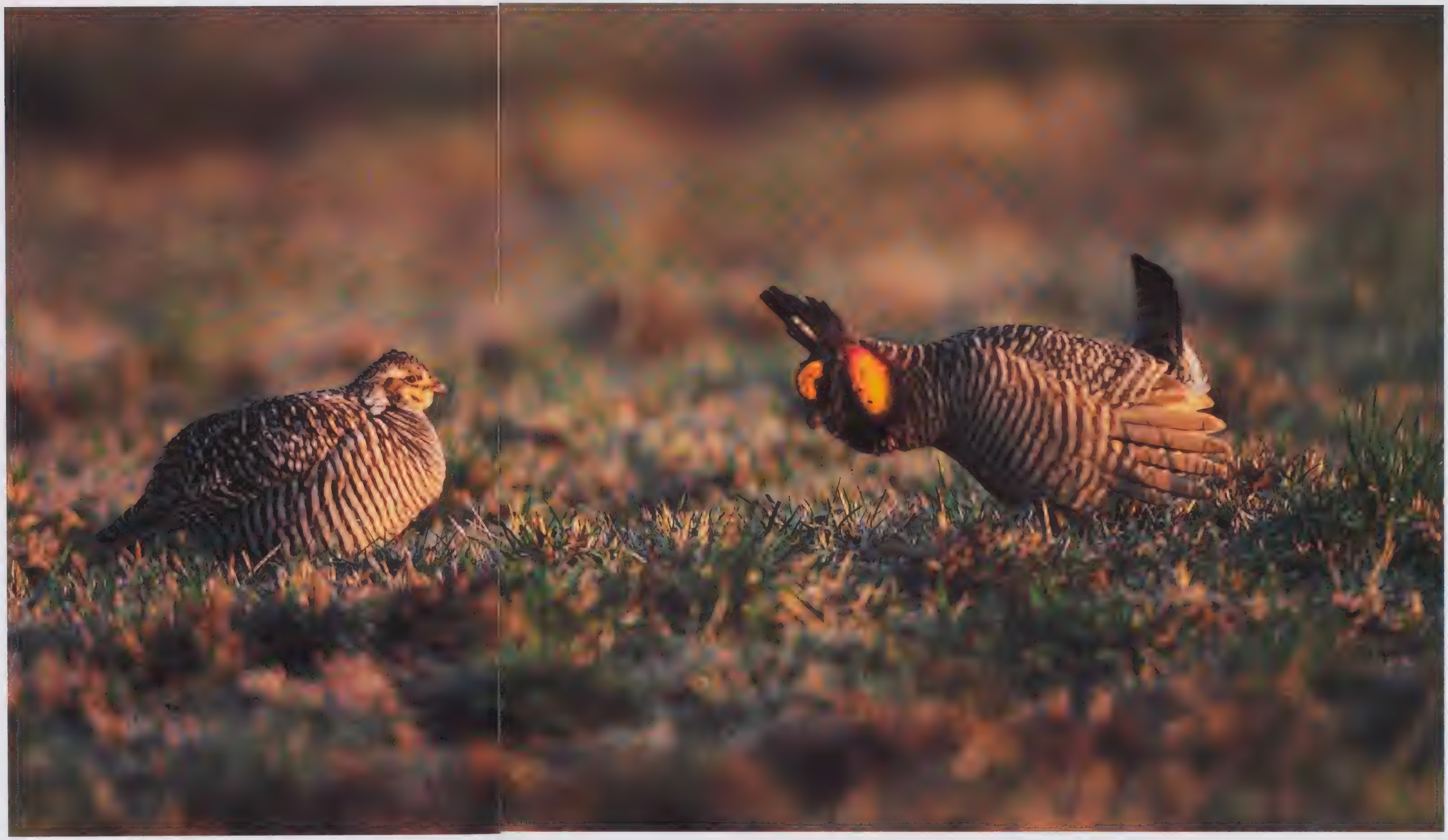
thriving in the Illinois prairies and cornfields just across the Mississippi River from his boyhood home. Today, Scott Simpson and the small but dedicated staff of the Prairie Ridge State Natural Area are working to preserve the last few hundred Greater Prairie-Chickens remaining in the state Twain associated most closely with them.

The story of prairie-chickens is inextricably tied to that of American grasslands. As I drive toward Prairie Ridge at 4:30 one frigid April morning, it's easy to understand the birds' near-disappearance: where could they find shelter among these vast, empty fields of corn stubble? But the landscape changes abruptly, as native grasses—brown, dry, dormant, but still strikingly wild—swell high and ragged alongside my headlights. Somewhere among them, I know, are the only prairie-chickens remaining in the state.

Soon I'm shivering, along with several dedicated birders and ornithology students, in a small plywood blind reserved several weeks in advance. The mating ground—also called a booming-ground, or lek—is immediately in front of us, perhaps 40 yards wide, a bit less than that deep. It was disked the previous autumn, and even by the spare moonlight I can see that its grass is short, as though mowed.

From behind the plywood blind comes a mournful, hollow cry, like someone blowing across the lip of a jug. It's the eerie, unmistakable booming of a prairie-chicken cock, answered almost at once from the far side of the lek. Soon four or five cocks are there, just barely visible as they move slowly in the dark gray of the coming dawn. I squint—it's like trying to make out crabs scrabbling along in murky water.

The long, slowly throbbing calls come steadily. But just as the booming seems to be gaining momentum, with several more cocks audible and approaching, a shadow streaks overhead, and the booming stops instantly. By the time the shadow alights on the far left side of the lek, the prairie-chickens have vanished.



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*Strutting his stuff, a male Greater Prairie-Chicken performs an elaborate courtship display to win the hearts of the females on the lek. The bird's orange throat sacs balloon and shrink as he booms, and stiff pinnae feathers rise up from his brow like horns.*

We squint through binoculars at the shadow, trying to identify it. We know that a juvenile goshawk has recently been trying unsuccessfully to catch prairie-chickens on the exposed lek. But as dawn comes on, the gray light becoming paler, we make out the tufts of a Great Horned Owl. It sits nearly motionless for more than a quarter of an hour before flying off. When it does, the booming resumes—softly and hesitantly.

The dim heads of two cocks are pressed nearly flat on the lek. The others seem to have fled into taller grass, but they gradually rise or return, and soon at least six of the large grouse are there, pawing, turning, and raising pinnae feathers from their brows like horns. Their orange throat-sacs, or tympani, balloon and shrink as they boom. The birds make sudden rushes, usually ending in quickly aborted standoffs. Sometimes they burst into the air, nearly chest to chest. One flips backward, landing awkwardly on the dust and short grass.

The booming rises, rises. Now the cocks ignore even the Northern Harriers and Short-eared Owls hunting in the tall grasses beyond the lek. At last the booms are answered by the high, sharp caw of an approaching hen. One of the students shakes her head. "It doesn't sound like we're in America anymore," she whispers.

She's right; heard out of context, the combination of hollow, lonely moans and crying caws might suggest a jungle more than a patch of low grass beside an Illinois cornfield. But for hundreds of years, this annual booming was one of the most distinct, readily recognizable features of the American prairie. The Blackfoot, Shoshone, Sioux, and other Native American tribes imitated the birds in prairie-chicken dances; their meat and bones and quills were all used frequently at Cahokia, the mound city that in 1250 A.D. boasted more than 30,000 inhabitants. The birds were considered harbingers of spring, their booming a reliable sign that the growing season would soon begin.

Prairie-chickens thrived in this distinctively American landscape of grass, fire, and buffalo. In 1682, French explorer Robert de LaSalle reported seeing prairies "alive with bison," near modern Morris, Illinois, and 20-foot-high blazes moving as fast as the wind were annual events in the tallgrass prairie. The fierce blazes and grazing herds allowed light and air to reach the surface, broke up tough ground, and burst seedpods. In the process they created a complex matrix of tall and short grasses—ideal habitat

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*In a blur of wings, two male or cock prairie-chickens get into a scuffle at the lek. During these altercations, the birds often make sudden rushes at each other, sometimes bursting into the air nearly chest to chest or flipping backwards. An incredible sight.*

for the prairie-chickens. But by 1840, when Eliza R. Steele wrote of Illinois prairies as a "world of grass and flowers . . . animated with myriads of glittering birds and butterflies," American settlers had already begun transforming the land by killing off bison and damping wildfires—and, most importantly of all, by plowing the prairie.

For decades, the incredibly tough roots of big bluestem and other grasses defied all plows but those drawn by powerful, and prohibitively expensive, teams of oxen. The 1833 invention of the steel plow, which broke the roots quickly and cheaply, finally led to the effective end of the Illinois prairie. But ironically, the destruction of the grasslands caused a short-term population explosion among the prairie-chickens that depended on them, because the patchwork of native grasses and croplands that accompanied the transition to agriculture provided an ideal combination of cover and food. By 1855, when 20-year-old Mark Twain was beginning his apprenticeship as a river pilot, the state prairie-chicken population was approaching an all-time peak, between 10 and 12 million birds.

By the time Twain traveled to Europe, where he would be tantalized by memories of roasted prairie hens, the birds were being hunted literally by the trainload. Chicago markets measured the birds by the cord and ton. More than 600,000 prairie-chickens were bought by the city's markets every year, at a price of $3.75 per dozen. Frances Hamerstrom, who studied the birds in Wisconsin for decades, described the meat Twain longed for as rich and dark. In her memoir *Strictly for the Chickens,* she wrote that the birds should be "roasted for a short time in a hot oven and with the skin on" (she always resented having to give up most of the skins for use as research specimens). But many of the birds were prepared in fancier ways in restaurants as far away as New York's renowned Delmonico's, where chef Charles Ranhofer might jelly the breast meat before garnishing it with mushrooms, glazed truffles, and well-cooked cock's-combs.

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The birds were emblems of the time. Railroads ran specials for hunters. A monthly newspaper called *The Prairie-Chicken* declared itself "rich, spicy, popular, cheap, and wholesome" (and, the editors might have added, ominously transitory: the paper folded in a year). Market-hunting towns sprung up for the express purpose of providing the birds to urban sophisticates. They were carried to cities by modern refrigerator cars and served to people as far removed from their cries as typical modern Americans are from Nebraska feedlots. The prairie-chickens were being loved to death.

But what at last doomed prairie-chickens across most of their Illinois range was the very thing that had allowed their numbers to explode: the unsurpassed crops of corn that could be grown on broken prairies. By 1855, when Twain encountered an "untravelled native of the wilds of Illinois," the "wilds" were well on their way to disappearing. The bare cornfields that replaced them provided no more winter cover than did the short, invasive, cool-season grasses that spread after farmers began damping down wildfires. The balance between native prairie and farmland that the birds had reveled in soon shifted decisively toward plowed fields.

As early as 1893, T. A. Bereman could write in *Science* that the birds he called "sun-worshippers" had undergone a steep decline in Iowa; he urged readers to wait for a spring morning when "the sun rises clear and the air is clear and frosty, [then] go out upon the suburbs of a prairie town, away from the usual noises of the

RICHARD DAY/DAYBREAK IMAGERY

village, and listen." Even in Illinois, some were advising hunters that the best pickings could be found farther west. The birds would soon be less a living symbol of prairie than a nostalgic memory.

By 7:00 A.M. the morning light is strong and clear on the lek. The cocks pace and charge and fly, while two hens stroll between the mock combats. One cock struts at the lek's eastern edge; at an opportune moment he strides to cut a hen away from the others, escorting her toward the thick grasses before she abruptly flies off. At the peak of the booming, we count eleven cocks and four hens, though the comings and goings of various birds could mean that the total count of visitors to the lek is actually somewhat higher. Short-eared Owls and Northern Harriers make frequent passes. Several vivid yellow meadowlarks take up stations only 15 feet or so from the blind.

In spite of all the activity, none of the prairie-chickens mate. Each hen typically spends five days on the grounds. Through her decades of observation, Hamerstrom noticed that during that time the hens typically move through stages of indifference, awareness, flirtatiousness, seduction, and finally reception. Though the season as a whole is winding down, we may be seeing these particular birds on one of their first days on the lek.

One by one, the hens fly off. When all are gone, the booming fades. The cocks sink onto the grass. Lying on the lek with pinnae and tails lowered, orange throat sacks deflated and invisible, they seem like entirely different birds—diminished, depleted, and humble.

When the last hen is gone we are free to leave. We shuffle out under a sky that seems vast and bright and open. As we crunch on frozen clumps of grass toward the Prairie Ridge offices, the remembered booming still fills my ears. I feel privileged to have seen the strange, flamboyant performance, visible only to our quiet blind. And though it saddens me to think how rare the dance of the prairie-chicken has become, I find it heartening to think of the people working so hard to preserve it.

*Without fire and grazing bison, native grasses grow too tall for prairie-chickens to use for breeding habitat. Every year, the staff at Prairie Ridge State Natural Area burns much of the grass to clear away the excess growth and add potash to the soil.*

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Prairie-chickens owe their survival in this corner of Illinois to the cultivation of redtop grass. The best soils for growing corn, and thus the first to be plowed up, were the rich, relatively young "black prairie" soils of the north. The somewhat less mineral-rich "gray" prairies to the south—including those around Prairie Ridge—were better suited for growing redtop grass, which has seeds that can be crushed to make dye. Redtop grass makes fine prairie-chicken habitat, and the birds did well here, in the self-proclaimed "Redtop Capital of the World." But after World War II, synthetic dyes made the redtop much less valuable, and large additions of alkali fertilizers made it possible to grow good harvests of corn and soybeans on the gray prairies. The two developments soon made even cool-season grasslands a thing of the past, and the prairie-chicken populations crashed.

To my eyes, the topography of the restored booming grounds is indistinguishable from that of the surrounding cornfields; I'd imagined that the booming-ground was defined solely by the kinds of grass growing there. But at the Prairie Ridge offices, district biologist Terry Esker quickly corrects me. "When prairie-chickens come back to a place, the topography draws them to their old grounds, even when there's no modern grassland," he says. "There are slight rises and slopes. They like open horizons, both to be heard and for open sightlines that let them see predators. In Kansas, that means the tops of ridges. Here it means short cover and the right topography. You get a sense for it after a while—oh, yeah, that's where they're likely to set up—even though it can be a real subtle difference."

Still, making the chosen area into a suitable booming ground is now almost entirely up to humans. Though one of the first things that struck me about Prairie Ridge was the unnaturally straight border of its native grasses, it's not until I talk with Esker that I realize just how intensively the area is managed. In the absence of fire and grazing bison, native grasses grow too uniformly tall for prairie-chickens to use for breeding. So every year, Prairie Ridge director Scott Simpson burns a good deal of the area's land, in the process clearing away excess growth and adding potash to the soil. Simpson also hires cattle from local farmers to graze down some of the native grass tracts. Replicating the grazing patterns of the vanished bison results in the highest species diversity in the area. Oxen were once hired out to break the prairie here; it's nice to think that a similar arrangement is used to restore some small portion of the old grassland.

RICHARD DAY/DAYBREAK IMAGERY

*Researchers in the 1990s found that the genetic diversity of the Illinois prairie-chickens was low, leading to lowered fertility and egg success. In response, the Prairie Ridge staff has been releasing wild-trapped prairie-chickens from Minnesota and Kansas.*

Though the jobs of burning and grazing are complicated by the fact that Prairie Ridge's 3,800 acres are broken into around a dozen unevenly sized tracts, all separated by private land, these divisions also allow for a complicated blend of habitats that make the area an invaluable refuge for grassland species. Esker points out that preserving natural, or even restored, prairie was never the ultimate goal here—as the peak numbers of prairie-chickens in the 1850s showed, a varied matrix of native grasses and croplands can support a higher population than an entirely natural ecosystem. So Simpson and his staff burn and graze, rip out fences and buildings to improve sightlines, and clear brush to cut down on predators. The result is a broken mosaic of remnant prairie, non-native grasses, wetlands, old pasture fields, and woods. Today, only about a quarter of the area is seeded with native grasses; if prairie-chickens prefer invasive cool-season grasses to native species during certain times of the year, the staff is more than happy to accommodate them.

In the early 1990s, Simpson says, surveys began showing a lack of egg success and fertility, both classic signs of a lack of genetic diversity. After a mere 46 birds were counted in 1994, the problem of a small gene pool appeared acute. Though hens can disperse over wide distances—one radio-collared bird made its way to the Marion County unit of Prairie Ridge, more than 50 miles away—it is not realistic to expect them to transverse 300 miles of cropland to mate with the prairie-chickens farther west.

The solution was to release birds trapped in Minnesota and Kansas, where large grasslands and solid conservation programs have helped to maintain solid prairie-chicken populations. The researchers hope that the addition of these birds will help to mimic some of the more organic genetic mixing once created through natural dispersal.

The result of the careful management is something close to the prairie-chicken ideal. There is a lek with short grasses and good sightlines, surrounded by taller grasses that give good brood cover, and, after the eggs hatch in May or June, a ready supply of insects. Surrounding cornfields provide waste grain after the harvest, and carefully selected birds from out of state help to mimic the natural migration of a larger population.

Admittedly, the small amount of available land is a lasting problem, one without a simple solution, as the advent of ethanol makes it increasingly expensive to acquire more land. The reality is that there are now probably about as many prairie-chickens in Illinois as there will ever be again. But thanks to the dedicated efforts of researchers at Prairie Ridge, the birds can go on booming, heralding spring with cries as haunting to listeners today as they once were to Mark Twain. ◆

*Andrew Beahrs is a freelance writer and novelist based in Berkeley, California. Visit his website at www.andrewbeahrs.com.*

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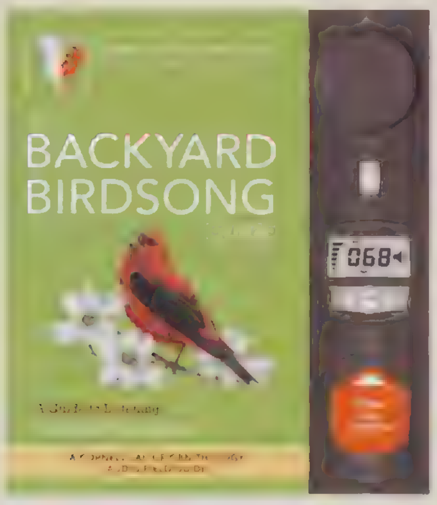

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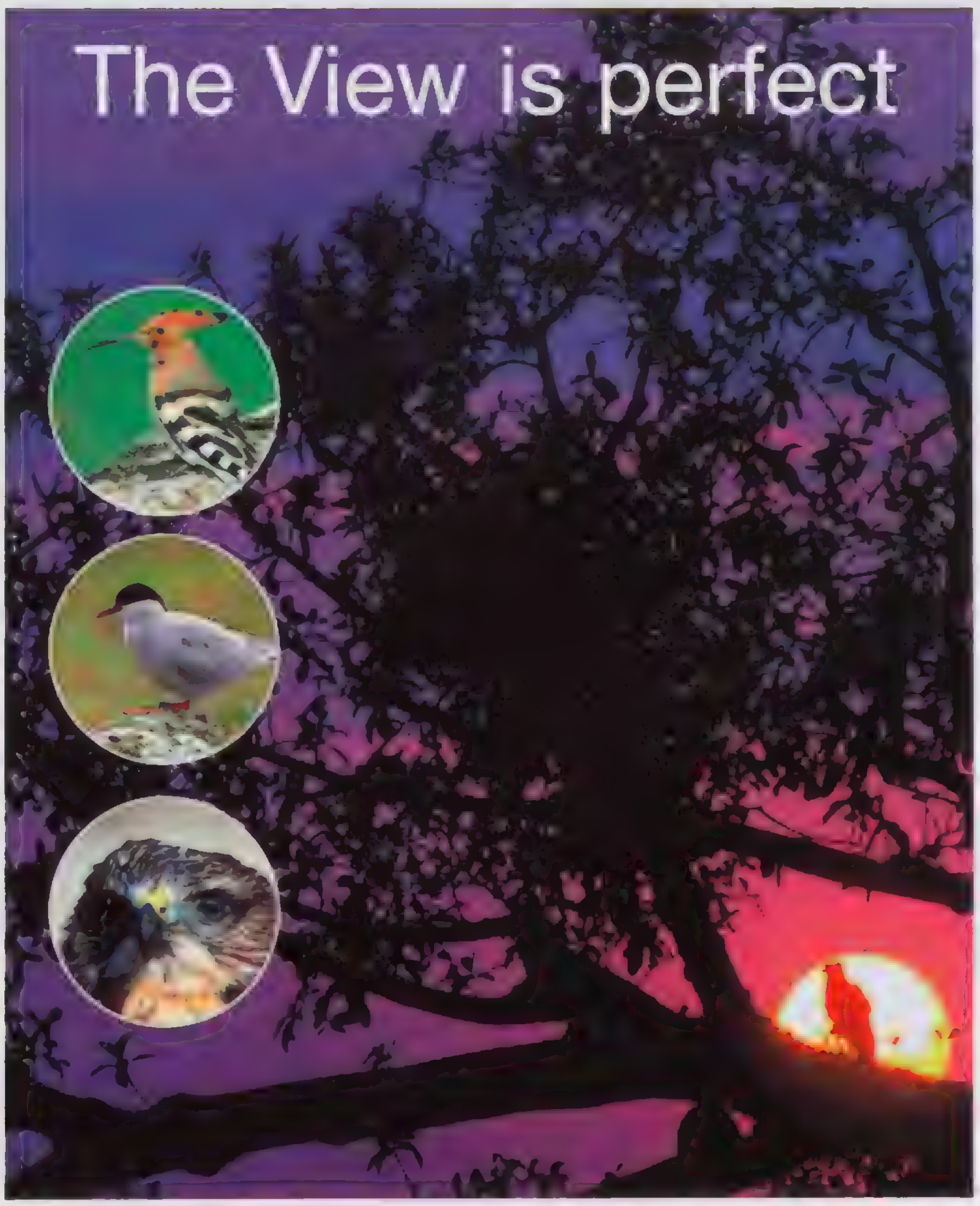

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# A BIRDING LEGEND

*by Tim Gallagher*

## *Celebrating the 100th anniversary of Roger Tory Peterson's birth*

What can you say about Roger Tory Peterson? He was certainly the greatest popularizer of bird study this country—and perhaps the world—has ever known. His groundbreaking 1934 book, *A Field Guide to the Birds*, was revolutionary. He created a simple visual system for identifying birds in the field, using a bird's shape, pattern, and field marks. And instead of putting the species in phylogenetic order, he placed similar-looking species together on plates and pointed out the major distinctions between them with little arrows.

The book outstripped all expectations of his publisher, Houghton Mifflin. The first printing was only 2,000 copies, and it sold out in a week. Eager bird enthusiasts have since bought more than 7 million copies of his field guide.

Roger largely created the modern avocation of birding. He had an absolute genius for simplifying the concepts of bird identification and communicating them in a way that anyone could understand. He laid the foundation that thousands of people have taken advantage of over the years. And Roger was also always an enthusiastic spokesman for bird conservation and led countless people to develop an abiding interest in the well-being of wild bird populations.

Roger will always have a place in the hearts of Cornell Lab of Ornithology staff. He was an influential member of our administrative board in the formative years of this organization, and it was actually Roger who suggested the name *The Living Bird* for this publication, for which I'll certainly always be grateful.

Although Roger passed away on July 28, 1996, he will be remembered eternally by the millions of eager bird enthusiasts who came to their love of birds and nature through his books and his artwork.

This coming August 28 will mark the 100th anniversary of the birth of this great man in Jamestown, New York. For information on upcoming events celebrating his anniversary, visit the web site of the Roger Tory Peterson Institute at www.rtpi.org.

*Roger Tory Peterson was only 27 years old when his historic field guide was published in 1934. He became an instant icon, adored by tens of thousands of eager bird enthusiasts who came to their hobby through his books and artwork. Though he passed away in 1996, his spirit will live on forever in the hearts of the people he inspired.*

COURTESY ROGER TORY PETERSON INSTITUTE (2)

TIM GALLAGHER

# THE TREE SWALLOW FARMER

by Elizabeth Quill

## *A Cornell researcher's 22-year fascination with swallows*

After lifting the grayed, warped plank of wood on the side of nest box number 16, Cornell scientist David Winkler gently sweeps up a handful of seven-day-old Tree Swallows and drops them into a cotton pouch. He sits down in the ankle-high grass, surrounded by summer thistle.

"One of nature's miracles," he says, holding out his hand. A gooey, white fecal sack rests on his palm. "I like to get them to defecate in my hand. Then I can fling it away and keep predators guessing."

Winkler, also known as "Wink," calls himself a farmer. His crop is the *Tachycineta* genus of swallows. His yield is scientific understanding. With more than 400 nest boxes, 60 percent of which are occupied, he has created a home for Tree Swallows beside some experimental ponds owned by Cornell University in Ithaca, New York. In return, the swallows provide Wink with an ideal outdoor laboratory. Mutualism at its finest.

Wink has been working with swallows for more than two decades, during which time he has authored, coauthored, and advised on more than two dozen papers specifically on swallows. He has studied parental investment and defense, nest construction, breeding, and natal dispersal. His students have banded, observed, recorded, and taken blood samples from swallows. He has brought others into his world. And his most recent passion connects colleagues across the Americas to study wide-scale swallow distribution and life-history characteristics within and between species.

Tree Swallows are perfect birds to study. These cavity dwellers do not excavate their own cavities, so they readily

*Cornell professor David Winkler examines a fresh-laid Tree Swallow egg from a nest box at his study site.*

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MARIE READ

*A Tree Swallow carries a feather to its nest box (above). The birds line their nests with feathers to provide warmth for their eggs and young. At right, Cornell's experimental ponds in Ithaca, New York, are the site of David Winkler's "Tree Swallow farm."*

nest in human-made boxes. And, according to Wink, once the birds settle, they tend to hold on through whatever hardships may arise.

"They have a ton of gumption and a lot of character," Wink says. "They are tough birds, and they don't hold a grudge. They don't abandon their nests. You can just pick them like fruit. You can create your own populations."

After unzipping his stuffed, forest-green pack, Wink takes out the appropriate instruments—a digital ruler, pair of pliers, and scale.

He patiently removes the four young swallows from the bag, one at a time. Holding the blue-and-pink bodies between his flattened fingers and large thumb, he stretches one tooth-pick-thin leg and bands it, announcing the number.

The delicate fledglings still sit submissively. Wink measures the length of the head and beak and then the wing. He weighs each young bird by placing it into a manila envelope affixed to the scale. Then he puts the swallows into a new cotton sack, pulling the shoelace cord snug.

"We try to make it easy on the birds," he says. After gathering his materials, he returns the swallows to their nest box with one scoop. "We need more farmers."

A male and female Tree Swallow rested on a low power line as Wink approached the Ithaca field site in his brown Volvo. Thirteen more sat 20 feet away, while others foraged overhead, catching insects in midair as the sun glistened against their iridescent backs.

The species breeds throughout Canada and south to California, New Mexico, and Georgia, wintering as far south as Panama. They like Ithaca well enough; the more nest boxes Wink builds, the more swallows he attracts. And the 91 ponds and two reservoirs on the land north of the Ithaca Tompkins Regional Airport, originally designed for aquatic plant growth and marsh ecology studies, satisfy the swallows' desire to be near water, where the bug catching is good.

Wink set up 10 nest boxes at Cornell in 1984, while he was working as a postdoc at Oxford University. He likens swallows to his Ph.D. subjects, gulls and shorebirds—they have big populations, are easy to study, and have undefined foraging territories. By the following spring, he had 100 more nest boxes. And when Wink began his first field season in 1986, he also set his other life's passion in motion. He began recruiting other swallow enthusiasts.

"When you start banding birds, you can't help but wonder: where do these birds go?" Wink said.

A man in Cortland, New York, started catching birds Wink had banded, so Wink and his colleagues at the Lab of Ornithology decided to start a swallow and bluebird dispersal study at the state level. With the help of about 60 volunteers, they were able to extend the study area to sites within 400 kilometers of the Ithaca site and continue the project for 11 years.

The results, published in an article titled "Breeding Dispersal and Philopatry in Tree Swallows" (*The Condor*, November 2004), revealed the species' tendency to stay around their home area. Of the 356 males and 1,459 females captured in more than one breeding year, only 4 and 14 percent respectively dispersed to new breeding sites.

Wink said the dispersal studies represent some of his most important research. The movement of the birds from their natal and breeding sites to new sites is not fully understood, and scientists who want to understand ecology, evolution, survival rates, biogeography, population genetics, and life-history traits must first understand dispersal.

While growing his network, Wink also focused on the birds he saw every day, monitoring them and collecting as much information as possible. His studies often focus on life-history traits, which are those that directly affect survival or reproduction. With these local birds, he has helped move the understanding of swallow ecology forward.

Working with colleague Paul Allen, Wink found that the clutch size is smaller when birds breed later in the season. In a paper titled "The Seasonal Decline in Tree Swallow Clutch Size: Physiological Constraint or Strategic Adjustment?" (*Ecology*, 1996), Winkler and Allen investigated whether environmental conditions or female quality, including body mass, breast muscle thickness, fat stores, and body size, explain the relationship. They found that the egg-laying date and age predict the size of the clutch of eggs, suggesting that the females may adjust the size of their clutch based on declining food supply and the prospects for offspring survival.

Wink would like to replicate similar studies across the Western Hemisphere in an effort to understand the role environment plays.

"I like to study huge populations," he said. "And after doing this for 22 years, it clearly is a long-term study."

With so many projects behind him and a lifetime of ideas in front of him, Wink is forever attached to Tree Swallows. He is also good at attracting other people who are interested in studying these slender fliers, and he gratefully opens his arms and nest boxes to them.

Wink's home base is a trailer just off Warren Road. A professor of ecology and evolutionary biology at Cornell, he oversees the work of about half a dozen undergraduate and an equal number of graduate students each year. He encourages the undergraduates to take advantage of the swallows in Ithaca. Wink says a lot of scientific literature on swallows already exists, but there are still unanswered questions.

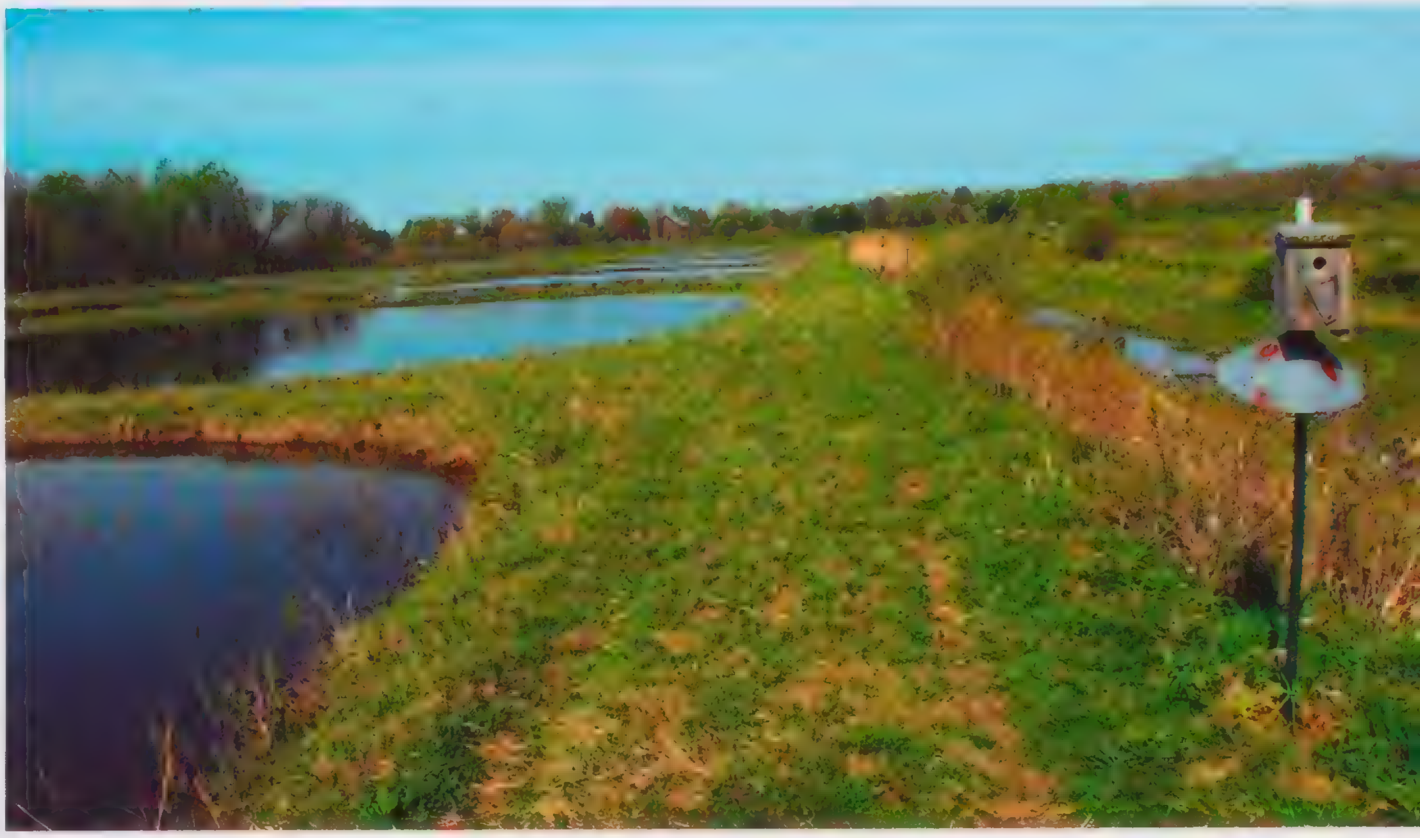
As a sophomore at Cornell University, Kevin Ringelman sent letters to professors because he wanted to get involved in research. Wink emailed him back right away and later suggested that Ringelman study feather fighting.

Tree Swallows use the feathers of other bird species to line their nests for warmth. Wink found that an increase in feathers in the nest box leads to earlier fledging. But swallows have to get the feathers, and sometimes three or four birds will get into a loud and long-lasting chase over a single feather. It's a tough competition.

"The swallows just go nuts," Ringelman said. "There is even poetry written about it."

He tried to induce stress by taking all of the feathers out of some of his swallows' nest boxes. He predicted that birds with stolen feathers would be more aggressive and win more fights. Also unsure why some birds would drop the feathers, he cut away the downy parts. Maybe some feathers were not suitable, or the swallows just couldn't carry them.

Launching feathers into the air with a blowgun created from a PVC pipe, Ringelman watched. When a bird grabbed a feather, it would swoop, spiral, and climb, attracting attention. Frequently when the chase died down, the swallow with the feather would



TIM GALLAGHER

drop it and swing around to grab it again—"as if it was trying to bring the fight back," Ringelman said.

Though the stress he induced did not seem to have any effect on bird behavior, he did find that female birds are more determined to bring the feathers back to the nest.

Wink said he tries to create an environment that encourages students to ask questions. And with more than a decade of continuous work at the site, studies often build on each other. Each observation leads to fresh hypotheses, and Wink is committed to collecting loads of data.

He monitors prey availability at the site, running a 12-meter bug sucker from 7:00 A.M. to 6:00 P.M. every day from April 1 until the last fledging. A tall white tube held up with wires, it collects bugs by sucking air in the top at about 45 miles per hour and then shooting it out the bottom after the bugs land in an ethanol bath.

"A sitting bug is not a bug to swallows," Wink said.

Wink is working to compile quantitative results, and he said that swallows do not start breeding until the insect sample reaches a certain size.

During her undergraduate work at Cornell, Melissa Bowlin took this information and Wink's earlier work with clutch size and planned her own study. She wanted to investigate variation in flight performance and any correlation it may have with the egg-laying date. Better fliers, she thought, might be able to get more insects and more nutrition, allowing them to begin laying eggs earlier in the season than poorer fliers.

"One of the things that makes birds so special is they fly," Bowlin said. "But we don't know a ton about flight."

So Bowlin and Wink built a flight tunnel with a series of wooden panels at the Ithaca site. The bird sits in a small box with a false bottom at the closed end of the tunnel. When the bottom is pulled out, the bird either falls or flies toward an opening at the other end. A camera records its actions, observing acceleration and maneuverability.

Bowlin found a positive relationship between clutch-initiation date and mean wing-beat frequency. Birds that laid eggs earlier accelerated faster when they were tested on the same calendar date. Her results, which were published in an article titled "Natural Variation in Flight Performance is Related to Timing of Breeding in Tree Swallows in New York" (*The Auk*, 2004), were the first to show that a nonheritable variation in phenotype is linked to a major component in fitness.

Bowlin said Wink made it possible for her to have a published scientific article while she was still an undergraduate.

"I don't think you can work with Wink for more than five minutes without hearing how swallows are the perfect study species," Bowlin said. "They are wonderful, patient birds. This is important because we worry about them. We have a really healthy respect for the birds."

Graduate projects are a bit different because the students have more freedom, and their studies do not always involve swallows. But the ones that do often look at the *Tachycineta* genus throughout a much greater geographic range, further fueling Wink's desire to connect swallow-studying scientists across the hemisphere.

Dan Ardia worked with Wink as a graduate student at Cornell. Ardia said scientists can ask a lot of questions of swallows that they can't ask of other species.

"I wanted to look at geographic variation, and Tree Swallows were an excellent study species because they are widespread," Ardia said.

He investigated parental investment in chicks by monitoring birds in Ithaca as well as at nest boxes in Tennessee and Alaska. He said tropical species tend to invest less in their chicks than temperate species, presumably because they have higher survival rates. Their best strategy is not to give their all in just one go.

"I was curious whether more southerly Tree Swallows would show differences in parental investment, and they do," Ardia said.

In a paper titled "Tree Swallows Trade Off Immune Function and Reproductive Effort Differently Across Their Range" (*Ecology*, 2005), Ardia revealed that in Alaska, where adult return rates are low, breeding females increase their reproductive investment to maintain the quality of their offspring. But in Tennessee, where return rates are high, breeding females invest less. As a result, Tennessee offspring are of lower quality.

Ardia's study was also one of the first to report geographic differences in immune function related to this different investment.

As Wink's reputation (and the Cornell Lab of Ornithology's) grow, so do the depth and breadth of the work that students can accomplish. Valentina Ferretti currently works with Wink. A Ph.D. student, she came to Cornell from Argentina. She is using the variation in the *Tachycineta* genus to study mating systems and parental care as they relate to extra-pair paternity. Though these birds are socially monogamous, females can store sperm. And DNA fingerprinting shows that mating outside the partnership does occur at high rates.

"The swallows have a weird mating system," Ferretti said. "I thought it would be interesting to look at the whole genus."

TIM GALLAGHER (2)

*The Cornell students working on the Tree Swallow project inspect the nest boxes almost daily and record information on the nest contents. Tree Swallows are near-perfect research subjects and very tolerant of disturbance. Above, David Winkler checks a nest box.*

She is investigating four species at four locations: Tree Swallows in Ithaca, Mangrove Swallows in Belize, Violet-Green Swallows in Oregon and California, and White-rumped Swallows in Argentina. Using DNA analysis, she will determine the extra-pair-paternity rate and then test five hypotheses to try to determine why the rates differ.

So far, she can only see results for the first two species, but they do show variation. Tree Swallows engage in 80 percent extra-pair paternity, whereas for Mangrove Swallows it is only 23 percent.

"It is a neat way of comparing different species that are breeding at different latitudes," she said.

So Wink's students do more than create a constant stream of swallow studies at the Ithaca site. Wink has used his connections with students and colleagues to develop a network of swallow tenders and similar monitoring sites across the Western Hemisphere. He calls the project Golondrinas de las Americas, which translates as Swallows of the Americas. As part of their studies, both Ardia and Ferretti set up boxes away from Ithaca. And Wink hopes the comparative studies born from a widespread collaboration will shed light on life-history characteristics, and, possibly, the avian response to climate change.

Though environments across the Americas differ, swallows have similar physiology and behavior. So when biologists at 31 sites from Alaska to Argentina set up nest boxes, band birds, and collect data on the swallows and their relatives, they can also begin to understand differences in nesting and breeding biology between birds in tropical, temperate, and even polar ecosystems.

Ferretti has already taken advantage of the network. And Ardia's studies on survival rates and parental investment could be extended to all of the Americas. Sites in Saskatchewan, Wisconsin, New York, Iowa, Massachusetts, Colorado, California, Belize, Panama, and Argentina can share data on prey availability, egg-laying date, clutch size, and fledging success.

"I wanted a few people who I could do a lot with," Wink said. "At each new site, we learn so much."

Though the sites are currently too spread out to meaningfully study migration, Wink said one day he hopes it will be possible.

Martín Quiroga set up the first Golondrinas boxes in Argentina in 2000. After meeting Wink through the Internet and visiting Ithaca three times, he wanted to get involved. With help from students, he now runs the Santa Fe site in Argentina where he studies the White-rumped Swallow.

"This project is promising, because we can share ideas,"

TIM GALLAGHER

Quiroga said. "The biology of birds is moving, and you can't really investigate it if you are working by yourself."

Wink is also following his farming intuition and enlisting others in swallow conservation. If he succeeds in collecting consistent data from the sites for 10 years, then he can look at the impact of local activities such as deforestation and development and can investigate global climate change.

Eduardo Iñigo-Elias, project coordinator for Neotropical bird conservation at the Lab of Ornithology, said colleagues are requesting funding to work with local residents to recover habitats of three endangered swallow species by introducing nest boxes. The species include the Golden Swallow of Hispaniola, the Bahama Swallow, and the Tumbes Swallow.

"These are some of the most endangered swallows in the world," Iñigo-Elias said.

Swallows are sensitive to day-to-day temperature changes and have shown a 10-day advance in their egg-laying date in the past 30 years, according to a 2002 study Wink published with Peter Dunn in the *Proceedings of the National Academy of Sciences* titled "Predicting the Effects of Climate Change on Avian Life-history Traits." Swallows offer warning signals that other species don't.

"There is no consensus regarding climate change in Central and South America," Wink said. "We want to be ready with data on both swallows and insects."

Wink said there is promise and potential, but the extension into Latin America is difficult. Money and people are harder to find and harder to keep. Attitudes are also different.

Central America especially, he said, lacks historical conservation figures like Aldo Leopold or Rachel Carson and like-minded individuals with a deep curiosity and appreciation for nature. Most conservation is motivated from outside Latin America.

Quiroga said that even in Argentina, conservation is a fancy word. But scientists are trying to redirect their research.

"This field work is key to understanding organisms where they live and is important for conservation," he said.

Wink experiences the challenges firsthand. He tried to set up a site in Venezuela with the help of a graduate student.

"We put up the nest boxes, and they all disappeared," Wink said. The local people were borrowing the nest boxes to get parakeets to nest in their own backyards.

Though he could not set up a permanent site in Venezuela, Wink was more successful in Belize, where he worked closely with a nongovernmental organization. But when the money dried up, progress slowed. And after setting up a bug sucker in the country, he found out there was not enough electrical power to keep it running—a problem that was fixed this past spring.

"Even checking boxes is more than they can afford," Wink said. "We can't just assume things will happen."

*A pair of Tree Swallows perches above a nest box at the Cornell ponds. But the Ithaca sites are only part of Winkler's work. He has used his connections with students and colleagues to develop a network of swallow monitoring sites across the Western Hemisphere.*

Wink travels to Belize to band the birds. He said the site survives moment to moment. He wants to teach people in Central and South America that someone can make a living being a biologist. Countries like Argentina have the intellectual horsepower and universities to support these efforts. Professors with a stable crew of eager students create a solid base. Unfortunately, Wink said, the word "volunteer" doesn't exist in Mexico or Central America.

Though he cannot change economics or politics, Wink does want to create awareness.

"I want to find a cadre of people who come to see nature the way we do," he said, "as a source of inspiration, knowledge, and understanding. Once you think this way, a conservation ethic follows."

Wink knows that to keep the project living on after him, he will need to prove to people at other sites that the project is worthwhile and belongs to them. Wink said they love the project, but they don't understand it and can't afford it. He wants to see homegrown biologists become conservationists.

"When you know it, you care for it," Wink said. "We are all gardeners."

The Ithaca site serves as a launching point for Golondrinas, but Golondrinas in turn influences daily business in Ithaca. Despite individual and group projects, everyone takes breaks to band more birds.

One day in late June, five students headed out with a canoe, kayak, and paddle boat to band birds in the boxes over one of the property's reservoirs. The extra bandings and boxes will boost Wink's sample size and aquatic expertise for other Golondrinas sites. He wants to study 10-year-old birds, so if he loses half his swallows each year, he needs to begin with a lot of birds.

Wink is building the swallow network from the ground up, but he is also holding together any cracking pieces as he goes. He recently traveled to Argentina to teach a course in Buenos Aires. While he was there, he worked with a site at the southern end of the Andes Mountains and also helped set up another site beside a beautiful waterfall in northern Argentina where White-winged Swallows live.

When he travels, he always tries to recruit more "Golondrinistas," preaching, rallying the troops, and solving problems "wherever the brushfire is most intense." Meanwhile, it was a busy year in Ithaca.

"In the 2006 season," Wink said, "We were in the midst of local chaos." After a cold June, the birds renested. Normally, they renest after losing eggs, but not after losing chicks.

Ringelman said that the temperature dropped once and about 60 percent of the birds renested. Another cold weekend in June brought more trouble. Many had chicks and many of them died. But still, some swallows renested.

In his 22 years of research at the site, that was the weirdest Wink had seen. And he worked with his undergraduates to write a paper about the "funny" behavior.

> *"I want to find a cadre of people who come to see nature the way we do, as a source of inspiration, knowledge, and understanding. Once you think this way, a conservation ethic follows."*

In addition to travel and this paper, Wink was renewing a grant and overseeing field-site work while his right-hand man spent time with his newborn baby. In short, for Wink, it is all swallows all of the time. But his business is a pleasure.

His office in the bird collection at the Cornell University Museum of Vertebrates is oddly shaped, a triangle with three acute angles. Windows cover one long side and bookshelves line the other. It makes for a narrow space. Wink's desk sits along the window littered with papers, books, and birding paraphernalia. He said sometimes he hears and sees the swallows as he sits there.

"That's a really different life they have," he said. "They live in a three-dimensional world. They are not flat like us."

Wink wants to encourage appreciation across the Americas, and at the same time continue to expand swallow studies. He believes partnerships like Golondrinas are crucial if conservation is to be more than just a colonial endeavor. After all, for half of the year the birds live in Central and South America. Activity there affects swallows here.

As soon as all of the current Golondrinas sites reach 100 or more nest boxes, with a bug sucker at half of them, Wink said he will feel as though he has arrived. Golondrinas is not there yet, but the first scientific papers with collective research are moving forward.

"That will engender further enthusiasm," Wink said. He'd like to do more, but for now he is doing everything he can wherever he can. "We're just now starting to harvest the first fruits." ◆

*Elizabeth Quill is a writer and science enthusiast from Central New York. She currently works at* Science News *magazine.*

**ON THE WEB**

For more on Tree Swallows, visit http://golondrinas.cornell.edu.

# *Birding California's Central Coast*

*Text and photographs by Brian Sullivan*

## *For spectacular scenic vistas and an exciting array of bird species, this region of the Golden State is unsurpassed*

When I first drove the coast route from Santa Barbara to San Francisco, I couldn't believe my eyes: mile after mile of undeveloped coastline giving way to redwood groves and towering hillsides, lush river mouths, and rocky gorges. I saw California Condors soar lazily overhead along Big Sur's magnificent cliffs, elevated by gentle west winds. Growing up at the beach on the East Coast, I found this simply unthinkable—a place where nature has trumped the almighty dollar, where land is preserved instead of being developed, and where sunsets help earn California its nickname, the Golden State.

Nestled between the bustling celebrity of Los Angeles and the windswept streets of San Francisco lies an idyllic expanse of coast that time has seemingly forgotten, in all the right ways. This 300-mile stretch of central California

*The Ventana Wildlife Society successfully reintroduced a small population of California Condors to the rugged cliffs along the Big Sur coast (left). Now birders can park at pullouts on Highway 1 and enjoy spectacular face-to-face encounters with these avian giants.*

*The best time to find a good cross-section of birds and other marine life at Monterey Bay is from mid-August through mid-October, when bird diversity is high. As many as nine shearwater species have been recorded in a single day.*

*Pink-footed Shearwaters (above left) and humpback whales are are often seen during summer and fall outings on Monterey Bay. Humpbacks put on spectacular displays, often breaching while Pink-footed Shearwaters scavenge for leftovers near the whales.*

is perhaps the most scenic coast in the United States. Many people visit this area simply to make the famous drive along Highway 1 in Big Sur, but there is much more to this area than scenic beauty. The region's storied past is rich, spanning our imaginations from Zorro to Steinbeck, from Spanish missionaries to Russian fur-traders, from Cannery Row to fine wineries. Its biodiversity is no less complex. Hosting a remarkable variety of birds, Monterey is one of the most bird-rich counties in the United States, with 489 species recorded so far, and it provides some of the finest pelagic birding in North America.

### *Monterey Bay*

On its calmest days, Monterey Bay is idyllic. Warm, dry breezes ripple cobalt waters, giving the impression that you are closer to the tropics than you actually are. But on wild days, gray clouds wall up and march in from the northwest, signaling the arrival of autumn's first powerful cold fronts, torrential rains, hurricane-force winds, and raging seas—the ocean's raw power on display. Residents take the changes in stride, prepared for anything life-by-the-sea throws their way. In Monterey people say you should "dress in layers," and it's not unusual to need a hat and gloves in August—or shorts and a T-shirt in December. Despite the changeable weather, Monterey Bay is without doubt the crown jewel of the central coast. It is one of the most productive marine environments in the world, and wildlife abounds in many forms. The area is especially important for pelagic birds, and a day trip on Monterey Bay at any season is sure to be unforgettable.

A vast underwater chasm, as deep as the Grand Canyon, bisects the bay from east to west. Across this chasm flows the cold water of the California Current. This intersection of underwa-

*Black Turnstones (above) travel from their Alaskan breeding grounds to spend winter along the Pacific Coast, where they feed on tidal exposed rock, along gravel beaches and kelp lines. Brandt's Cormorants (right) nest in colonies on offshore rocks.*

ter topography and flowing water creates a phenomenon called upwelling, which brings nutrient-rich sediment and cold water close to the surface, creating a remarkable food source for marine life. Whales, seabirds, marine mammals, and a host of fish share this resource, creating a unique and spectacular ecosystem.

In summer, hundreds of thousands of Sooty Shearwaters use the bay as a staging ground. They hold the record for the world's longest bird migration, leaving their nesting colonies off New Zealand and traversing the entire Pacific Ocean in a figure-eight pattern. After arriving in the bay, they feast on the abundant resources while they molt their feathers and prepare for the nearly 20,000-mile journey home. On midsummer days when the west wind blows, the beach can be littered with the feathers of Sooty Shearwaters, as swarms of the birds feed offshore.

The marine mammal show in the bay is no less spectacular. Gray, humpback, blue, and fin whales all converge on Monterey Bay during different times of the year. Orcas prowl the area year-round, and numerous dolphins and porpoises are easy to find offshore. The best time to find a good cross-section of birds and other marine life at Monterey Bay is from mid-August through mid-October, when bird diversity is high. As many as nine shearwater species have been recorded in a single day.

### *Coastal Estuaries*

The central coast of California is dotted with several important coastal estuaries. Among the finest are Morro Bay and Elkhorn Slough. At low tide, broad expanses of mud flats become available for feeding, and these areas are packed with migrant and wintering shorebirds and waterfowl. A typical afternoon at either location often reveals tens of thousands of birds, ranging from Marbled Godwits and Western Sandpipers to Brant and Western Grebes. A kayak is an excellent way to view wildlife at either location.

You can find a large concentration of sea otters at Elkhorn Slough in Moss Landing most afternoons—as many as 75 of them congregate inside the breakwater, out of the rough ocean swell, to sleep and relax. The otters, which are spectacular enough, are joined by large numbers of harbor seals and California sea lions. Locals and visitors alike are well aware of how special these coastal estuaries are.

### *Rocky Shore*

Most of the central California shoreline is rocky. This unique habitat is home to a variety of nesting and wintering shorebirds, and provides roosting and nesting locations for thousands of cormorants and scattered colonies of Pigeon Guillemots. Black Oys-

*Most of the central California shoreline is rocky. This unique habitat is home to a variety of nesting and wintering shorebirds, and provides roosting and nesting locations for thousands of cormorants and scattered colonies of Pigeon Guillemots.*

tercatchers, which pry small mollusks off the rocks and adeptly open them with their chisel-like bills, are a representative bird of this habitat. They have one of the longest and narrowest ranges of any bird in the world, breeding from the Alaska Peninsula south through northern Baja California, but they typically aren't found more than a few hundred meters from the shoreline. In addition to the resident Black Oystercatchers, these areas are favored by wintering shorebirds such as Black Turnstones and Surfbirds.

## *Big Sur*

Big Sur has one of the most beautiful stretches of coastline in the world. Scenic Highway 1 winds along its edge, treating travelers to mile after mile of breathtaking vistas, in addition to some heart-pounding curves. This stretch of coast is famous not only for its beauty, but also as home to an avian Lazarus of sorts, the California Condor. In the afternoon, stiff west winds strike perpendicular to the sea cliffs, creating fantastic updrafts, lifting condors lazily overhead. It's not uncommon to come virtually eye-to-eye with these living dinosaurs, which have roamed the skies over California since the Pleistocene. The dramatic story of this species' near-extinction and subsequent return is heartening. In 1987 the last wild California Condors were brought into captivity, on the brink of extinction due to poisoning, shooting, and habitat loss. A captive-breeding program followed, and the birds did remarkably well. The first reintroduction efforts began in 1992, and now more than 150 condors occupy parts of California, Arizona, and Baja California. One of the great conservation success stories of our time, the recovery of the California Condor is an ongoing effort. For the first time in spring 2006, the reintroduced condors attempted to nest in the wild at Big Sur. Although the nest failed, this attempt was followed by another in 2007. Much work remains to be done, but constant study is focused on the species in Monterey County and elsewhere, and researchers have high hopes that one day California Condors will again be able to maintain a viable wild population.

## *Coastal Chaparral and Oak Savannah*

California's coastal chaparral habitat is unique, home to many of the state's avian specialties. It is rapidly disappearing in many parts of California due to development, but here on the central coast it is abundant. Short, dense vegetation characterizes chaparral habitat, which covers the lower coastal hills. A short walk through the chaparral reveals a variety of birds such as Wrentits, California Towhees, California Thrashers, and migrant sparrows including Lincoln's, White-crowned, and Golden-crowned. Traveling birders often overlook this expansive habitat, but as with the desert, a closer look will reveal a host of avian treasures.

Head inland across the coast range, and you'll find a unique habitat—California oak savannah, a remarkably beautiful country marked by scattered oak trees and tall grasses. One of California's avian endemics is resident here, the Yellow-billed Magpie. These close cousins of the more widespread Black-billed Magpie are quickly becoming a conservation concern throughout the state. California oak savannah is rapidly disappearing, and without thoughtful conservation programs we could quickly lose much of the area on which the magpie relies.

## *Santa Lucia Highlands*

The coastal mountain range known as the Santa Lucia Highlands pushes in on Big Sur from the east. This stretch of peaks has a unique set of birds not easily found elsewhere on the central coast, including Mountain Quail and Mountain Chickadee. Birders have recorded as many as seven species of owls in a single night in the canyons there. Several primitive roads access the region, but it is best approached on foot through a variety of hiking trails. Cone Peak, one of the highest places in the range in southern Monterey County, is a superb hike. In spring, the voices of Mountain Quail carry you up the trail to a crest where visitors regularly see California Condors. On the lee side of the crest grow spectacular pines and redwoods, including some large sugar pines that are home to the region's only known Mountain Chickadees. Any visit to the area should include at least a half-day's hike in the Santa Lucia Highlands.

## *When to Go*

Birding in California is spectacular year-round, and the central coast is no exception. As with most locations, spring and fall migration are the most interesting from a birding standpoint. If pelagic birds are among your target species—and they should be—a visit to Monterey between August and October is best. May and June are the only months in which the weather can be oppressive, usually due to coastal fog. Locals refer to it as "May gray and June gloom." But even during this time of year, the fog typically burns off by noon.

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*Brian Sullivan is eBird and Avian Knowledge Network project leader at the Cornell Lab of Ornithology.*

*Monterey's famed 17-mile Drive offers access to spectacular ocean views and the chance to study several coastal specialties. Merlins are often seen chasing shorebird flocks during migration, occasionally resting on a post before streaking off on their next pursuit.*

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# A Bird Photographer's Playground

*Text and photographs by Marie Read*

## *The view from Bosque del Apache*

With a blizzard of wings and a roar of cackling voices, thousands of Snow Geese take to the air in the chill of a New Mexico dawn. Around me camera shutters click, motordrives whir, and exclamations of awe and delight ring out as photographers and bird watchers enjoy the spectacular exodus. But there's more: as the light grows, tall gray shapes emerge from the dawn, a guttural murmuring builds in intensity, and finally, punctuated by strident bugling, hundreds of Sandhill Cranes begin taking off in small flocks, following the geese on their search for breakfast.

The scene is Bosque del Apache National Wildlife Refuge, one of North America's top bird-photography hotspots, where as many as 50,000 Snow Geese and 15,000 "Greater" Sandhill Cranes spend the winter. Add to that a few Ross's Geese and many dabbling ducks, throw in some raptors such as Bald Eagles and Northern Harriers, plus the resident Greater Roadrunners and a variety of songbirds, all surrounded by spectacular scenery and great light. It's no wonder Bosque's the perfect place for a bird photographer to play! Coupled with digital photography—seeing your images immediately and no film costs—Bosque provides an artist's palette that entices you to experiment, try new techniques, and set your creative spirit free, whether you want to capture crisply focused action shots or make more moody, evocative images.

Located at the northern edge of the Chihuahuan Desert, Bosque del Apache is a system of managed wetlands and agricultural lands along the Rio Grande Valley, surrounded by desert habitat with the Chupadera Mountains to the west forming a dramatic backdrop. Public access is via a 12-mile tour loop. Its two sections—the southern Marsh Loop and the Farm Loop to the north—are one-way unpaved roads linked by a central two-way road. Each loop is two-way for a short distance to allow convenient access to the most popular viewing areas. The tour loop entrance (fee payable) is located opposite the refuge Visitor Center.

Most bird photographers head first to the refuge's Main Pool, where the "Flight Deck" observation platform is often crammed with photographers waiting to capture the spectacular "blast-offs" of huge Snow Goose flocks at sunrise, and their equally dramatic return in the evening. Visitors should be aware that in recent years the Main Pool has been drained for management reasons so fewer birds have been roosting there. It's best to check refuge conditions before your trip.

Alternate spots for sunrise and sunset photography are the shallow pools along Old Highway 1, located a mile or so past the refuge boundary as you approach the refuge from the north. Many Sandhill Cranes roost overnight in the pools west of the highway, offering great opportunities at sunset against the dramatic mountain backdrop as well as takeoffs in the morning. Numerous Snow Geese roost in the pool east of the highway, and recently this pool has offered the best opportunities for photographing silhouettes and mass takeoffs at sunrise. Be aware that a railroad track carrying slow-moving freight trains lies between the highway and the pool. Trains pass only occasionally and can be seen and heard well before they arrive, but photographers should stay alert to this potentially dangerous situation.

To capture that goose blast-off shot, check the time of sunrise and be in place early. Remember that the most vivid color in the eastern sky often develops a half-hour or so before the sun reaches the horizon, especially if there are high clouds in the sky. (Conversely, the richest color at sunset occurs up to a half-hour after the sun has disappeared.) For warm, intense colors set your digital camera's white-balance function to "cloudy" or "shade." Don't forget to switch it back to "auto" or "sunny" as the sun climbs and you change to front-lit conditions. How do you expose for silhouettes at sunrise or sunset? Trusting auto-exposure may result in underexposed images, especially if the sun is included in the frame. Instead use manual exposure or take advantage of your exposure-lock button. Meter a section of the sky that looks to be middle-toned, lock in that exposure, and you're all set. Check and reset the exposure value periodically as the light levels change.

To get the best out of your visit, pay attention to the birds' behavior patterns. Bosque's geese and cranes have a distinct daily routine. After the sunrise exodus, they fly to the farm fields at the north end of the refuge to feed. Later in the morning, the geese take off en masse and return to water to loaf until midafternoon, when they usually head out once more to feed until dusk. Cranes on the other hand feed in marshes and fields all day. Both species then return to their roosting pools, sometimes well after sunset.

Noticing certain behavioral cues will

*Birds are often creatures of habit, and a photographer can use this knowledge to get some great photographs. The Northern Harrier (above) kept cruising along the same stretch of marsh foraging for small prey, and I was ready with my camera when it came back.*

help you get dramatic action shots. Cranes lean forward, "craning" their necks for several seconds before running along to take flight. Use your camera's autofocus tracking function, focus on the bird's head or neck and follow along with it (referred to as "panning") as it runs along. Waterfowl about to take wing hold their heads high and necks stiff, often bobbing or flipping their heads quickly. Other species may defecate or crouch before taking flight. Watch for these cues and you're primed for takeoff. Acquire focus and pan with the bird as above. Remember that birds usually take off and land into the wind. Ideally, you want the wind to be coming from the same direction as the light (from the south or east in the morning, or from the north or west in the afternoon) so that the bird is illuminated from the front.

Birds are creatures of habit, and you can use their activity patterns to your advantage. Roadrunners are often seen near the tour loop entrance and along the central two-way road, where they emerge to sunbathe on chilly winter mornings, ruffling their back feathers to let the sun's warmth play on their skin. They are easily approachable by vehicle. Accipiters such as Cooper's Hawks often hang out in the trees in the same area. Western Meadowlarks can be seen foraging along the roadsides bounding the Main Pool and the first stretch of the Marsh Loop. Say's Phoebes often forage for insects from favorite perches here too. As you drive around, you may notice other patterns; for instance, the Northern Harrier you see cruising up and down a favorite stretch of marsh looking for food probably takes the same route every day. Position yourself where light conditions are optimal and wait for the harrier to return.

For the best place to practice flight photography, head to the Farm Loop after sunrise. As you round the sharp corner at the north end, crop fields lie to your north, where the refuge grows corn and other grains for the cranes. (Of course the geese eat it too.) Here you'll have many opportunities to photograph geese and cranes in flight—individuals as well as flocks—as they fly in and out of the feeding areas.

For great flight shots it helps to be mobile and quick off the mark. Familiarity with your equipment is a must. You'll see many giant telephoto lenses at Bosque, but you don't necessarily need one to capture great images of birds in flight. A 300mm or 400mm lens is adequate to capture geese or cranes even full-frame, and lightweight enough to be hand-held. A 500mm or 600mm lens is heavy, so unless you are super-strong, use a tripod. Consider a "gimbal" type tripod head for maximum mobility and stability. For flock shots and birds in habitat, shorter telephotos and even wide-angle lenses can be used.

Today's newest cameras have excellent noise-reduction, so you can get away with using far higher ISOs, with the commensurate faster shutter speeds to stop action, than was ever possible with film. To stop action, consider using a shutter speed of

*Bosque del Apache occasionally has a gray day. Instead of struggling to get crisp flight shots in the dim light, get creative! Use slow shutter speeds to intentionally blur the flying birds, as I have done in this image of Sandhill Cranes taking flight.*

at least 1/500 of a second. Using shutter speeds of 1/2,000 of a second and faster, you'll be able to capture high-action sequences and render even fast-moving wings sharply focused. Select your camera's central autofocus point, pick a bird flying at some distance and acquire focus, using the focus-tracking function to keep the bird focused as you pan with it. When the bird is composed to your preference, begin firing off shots while panning smoothly until it has flown out of range.

At Bosque, a flying bird is likely to pass across backgrounds of different colors—from the blue New Mexico sky to the vivid yellow and gold cottonwoods gracing the refuge in late autumn. These changing backgrounds may fool even the most sophisticated camera meters, meaning that if you rely on auto-exposure your bird may be incorrectly exposed. Instead use manual exposure—meter a neutral-toned area lying in the same light as your subject, such as grass or a dirt bank, and lock in that exposure value. Mid-toned birds such as cranes and blue-morph geese then will be perfectly exposed wherever they fly. For white-morph geese, you'll want to underexpose 2/3 stop from the ambient exposure to keep detail in the whites.

Bosque is known for its great light, but occasionally a day goes gray on you. Now it's time to get creative! Instead of racking up the ISO and struggling to get sharp flight shots, try rendering flying birds intentionally blurred by using a slow shutter speed. For slow-moving birds such as cranes, a shutter speed of 1/8 to 1/30 second can result in some interesting effects. Faster-moving birds, such as flying ducks or blackbird flocks, need a faster speed (1/60 to 1/125 second, for instance), otherwise the bird or birds will be so blurred as to be unrecognizable. Go wild and enjoy the beautiful abstract shapes that birds take on as a result of using this technique. Have fun with color, too. On gray days there's a lot of blue light reflected from the sky, and images come out cool in color. You can warm them up with your "cloudy" white balance, but why not experiment by setting your white balance on "tungsten" for an intensely blue, otherworldly look?

Try lenses of various focal lengths. Bosque offers opportunities to use everything from ultra-wide angles to super-telephotos. Can you include some of the great scenery in your shot? How about using a wide-angle lens or a short telephoto to include a spectacular sky, leaving the bird or birds rather small in the frame? My arsenal includes 28-105mm, 70-200mm, 300mm, 400mm, and 500mm lenses.

When is the best time to visit Bosque del Apache? Fall and winter offer the highest bird numbers. Mid-November can be lovely with cottonwood trees aglow in gold and mild weather, but there are fewer cranes. Later in November, when Bosque's famed "Festival of the Cranes" takes place, crane numbers increase. In past years, refuge managers have cut corn in fields close to the refuge roads during the festival, allowing close-up views of the birds and awesome photographic opportunities. December and January can also be good, although the weather can be bitterly cold, especially in early morning. On the other hand, in cold weather, cranes and geese often linger in roost pools until after sunrise and tend to return to roost earlier in the evening. In February, most of the close corn has been eaten so cranes feed farther away from the road, and the easy photo-ops are no more. By late February most cranes and geese have started their journey north.

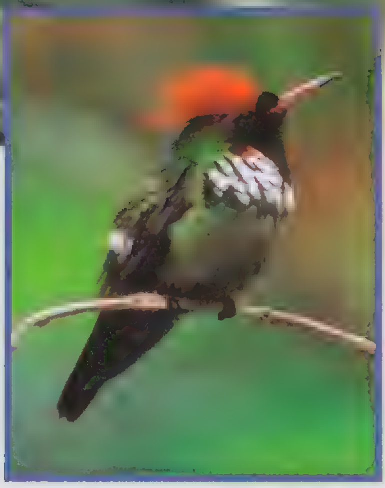
If you're dreaming of a fall or winter getaway for bird photography, head to Bosque del Apache. And get ready to play! ◆

*Marie Read lives in Freeville, New York. Visit her web site www.marieread.com.*

# Bird Brazil

## with the Brazil experts

Brazil is home to more endemics than any other South American country, including spectacular hummingbirds, cotingas, and tanagers. And Victor Emanuel Nature Tours has offered tours to Brazil for more years than any other company. Our Brazil experts, Kevin Zimmer and Andrew Whittaker, have been chosen by Princeton University Press to write the first comprehensive field guide to the birds of Brazil. Any Brazil trip with Kevin and/or Andy is sure to be a marvelous experience.



*2008*

- Southeastern Brazil, Part I: Iguacu, Coastal Paraná/ Santa Catarina, Rio Grande do Sul, and Itatiaia, September 29-October 16
- Southeastern Brazil, Part II: Espírito Santo & the Search for the Cherry-throated Tanager, October 14-24
- Brazilian Specialties: The Wonders of Minas Gervais and Intervales, November 2-20

*2009*

- Rio Roosevelt, January 22-February 1
- Highlights of Brazil's Atlantic Forest, January 31-February 9
- Mato Grosso, June 22-July 4
- Alta Floresta, July 2-12
- Best of Brazil, August 8-21
  - Iguaca Falls Extension, August 20-25
- Southeastern Brazil, Part I, September 30-October 17
- Southeastern Brazil, Part II, October 15-25
- Emas National Park, October 29-November 8
- Highlights of Brazil's Atlantic Forest, November 6-15

*2010*

- Northeastern Brazil, Parts I & II, January (dates TBA)

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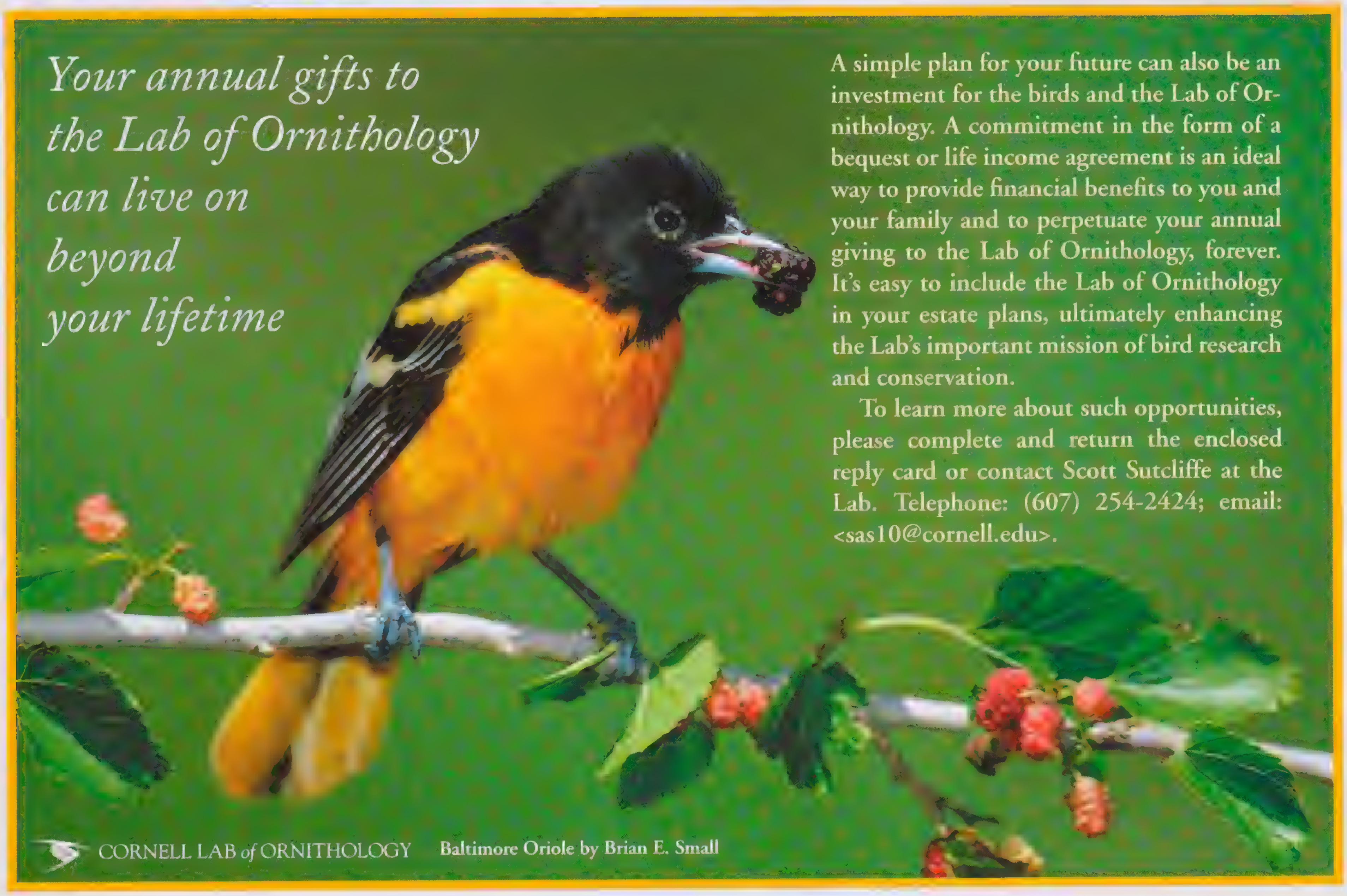
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Baltimore Oriole by Brian E. Small

## Steiner Peregrine XP 8x44 binoculars

Although I had heard some decent reports about Steiner's Peregrine XP binoculars, I was taking a chance by bringing a pair to Peru with me. I knew nothing about these bins. I literally pulled them from a box, stuck them in my backpack, and was off, flying south to one of the greatest birding destinations in the world—a place I'd never before visited. What if the binoculars didn't work out for me? They could ruin my entire trip.

I shouldn't have worried. The Peregrine XPs and I bonded instantly as I made my first birding foray the morning after I arrived in Peru. I noticed immediately how comfortable they were in my hands. I liked the amount of space between the top and bottom hinge holding the two barrels together, which let me wrap my fingers around them. And my thumbs actually sunk into the rubber at the bottom of the binoculars, which startled me at first. Turns out the manufacturer installed little gel pads under the rubber, right where your thumbs grip, and it's a nice feature.

TIM GALLAGHER

Like most top-of-the-line binoculars, the Peregrine XP is a roof-prism design, fully waterproofed and nitrogen purged. The optical glass is of the highest quality, coated with fluorite and other substances to enhance brightness and contrast and provide the truest color. I was impressed every time I locked the XPs on another colorful tanager species. And I have to admit, these binoculars seemed noticeably brighter and more vivid than the ones I currently own.

There's also an additional special coating on the eyepiece and objective lenses of the XP—Steiner's trademarked NANO Protection, which repels moisture from the glass, allowing a reasonably clear view in situations where some binoculars would mist up. The close focus is nice, approximately 6.5 feet, and it only takes about one-and-one-half turns to go from there to infinity.

My complaints about these binoculars are minor. I like twist-up eyecups, which these have, but I wish they had click stops so they would hold firmly at an intermediate setting between fully extended and fully retracted. And I don't like the thin rubber teardrop eyeshades for blocking peripheral sunlight. These only work properly with the eyecups fully extended. If you wear eyeglasses when you bird, which I do, these are not positioned properly to help you, and they keep popping up annoyingly. I think if I buy a pair of these binoculars, the first thing I'll do is carefully clip the rubber teardrops away with the scissors on my Swiss army knife. I also didn't much like the floppy neoprene rain hood used to cover the eyepieces in a downpour; it seemed to hang against my face in an irritating way. I prefer the standard rubber rain guard used by several other binocular manufacturers. Aside from these minor complaints, I was completely pleased with this product.

The Peregrine XPs are also available in a 10x44 model, but I opted for the 8x44s, hoping that their larger exit pupil diameter (5.5mm rather than the 4.4mm of the 10x bins) would provide a brighter image in low light. The field of view of the 8x44 bins was also wider (390' at 1,000 yards instead of 328' at 1,000 yards). But I'm sure that either one would have worked well for me.

Price: $1,599

—*Tim Gallagher*

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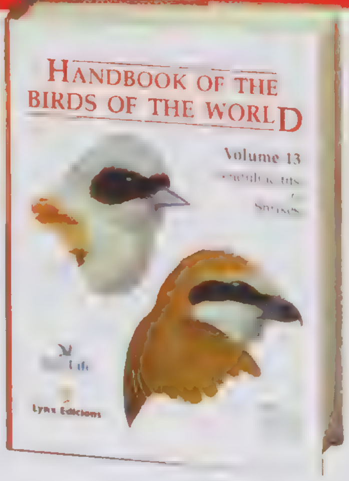

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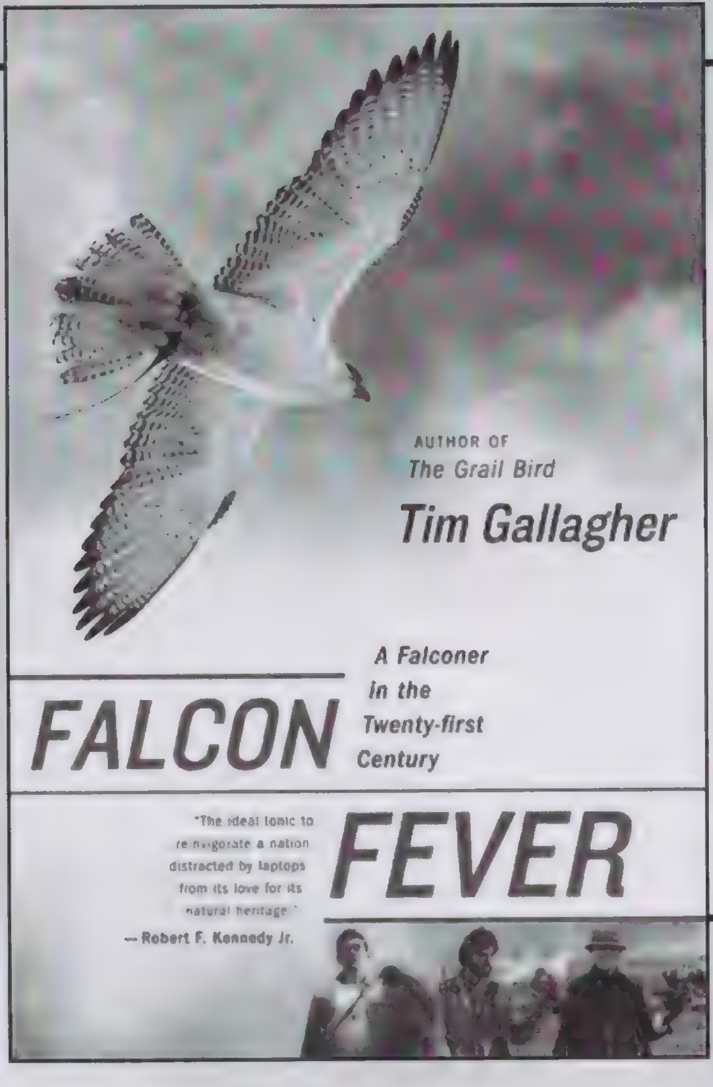

AUTHOR OF
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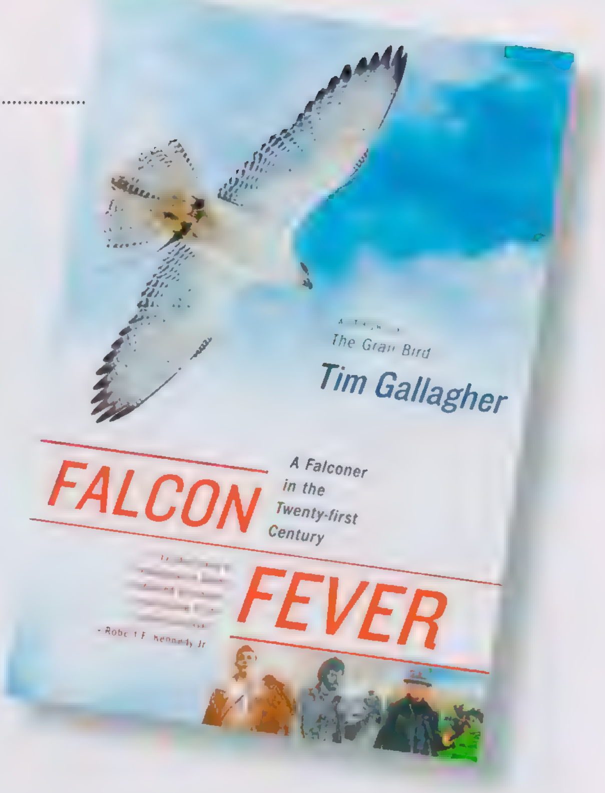


## Falcon Fever: A Falconer in the Twenty-first Century

*by Tim Gallagher*
*(Houghton Mifflin: 2008)*

Reviewed by Stephen J. Bodio

Tim Gallagher's *Falcon Fever* is an ambitious combination of autobiography and nature writing, by turns lyrical and confessional. It is a travelogue, an apologia for falconry, and even a medieval history: its other protagonist is Emperor Frederick II, who died in southern Italy in 1250. The book is honest to a fault, moving, and never dull.

*Falcon Fever* cuts back and forth between real-time shots of Gallagher flying his Peregrine Falcon in Ithaca, New York; autobiographical reminisces that start with him as a young boy and end with the death of his difficult father; travel pieces that include high-plains hunts, visits to England, and a journey to Italy to trace Frederick II's footsteps; and an account of Frederick's life. I'll refrain from crosscutting, and examine each in turn.

Gallagher's accounts of days afield with his male peregrine, Macduff, in pursuit of ducks are fiercely poetic. He evokes the predatory joy that comes with falconry's peak moments, the sense of identification with his avian companion: "When I'm flying a raptor, I'm a different animal, as fierce and determined as a rampaging wolverine to flush game for my bird. If falconry didn't exist, I probably would not have become a hunter." He lives for moments like this. "I lose sight of Macduff as he folds up and turns downward, going into a powerful stoop. A second later I spot him again with my ten-power binoculars as he plummets earthward, and I hear the amazing whistle of wind blowing through his flight feathers."

Gallagher's odyssey is in some ways a typical one. A youth who is a bit of an outsider, blessed with rampant biophilia and an affinity for all of life and nature; a start with pigeons; beginner's falconry, first with a kestrel, then with more "acceptable" hunting birds; companions who share an interest but perhaps not passion; all are components of many other falconers' experiences. He does an excellent job of describing the delights of youth in a time when kids could roam freely and explore nature without fear—a time before computers or "nature deficit disorder."

The introduction to the book foreshadows the grim turn his autobiographical narrative will take: "I believe that if it were not for falconry I would not be alive today." This was the late 1960s. Aimlessness and unease over the Vietnam War, marijuana, and acid were in the air. Perhaps a recklessness that came as a reaction to his violent and unpredictable father pushed him closer to the edge, but Gallagher managed to parlay a nickel-and-dime drug bust into a five-month stretch in the county jail. This chapter is harrowing reading; few prison memoirs are written by self-aware children of the middle class.

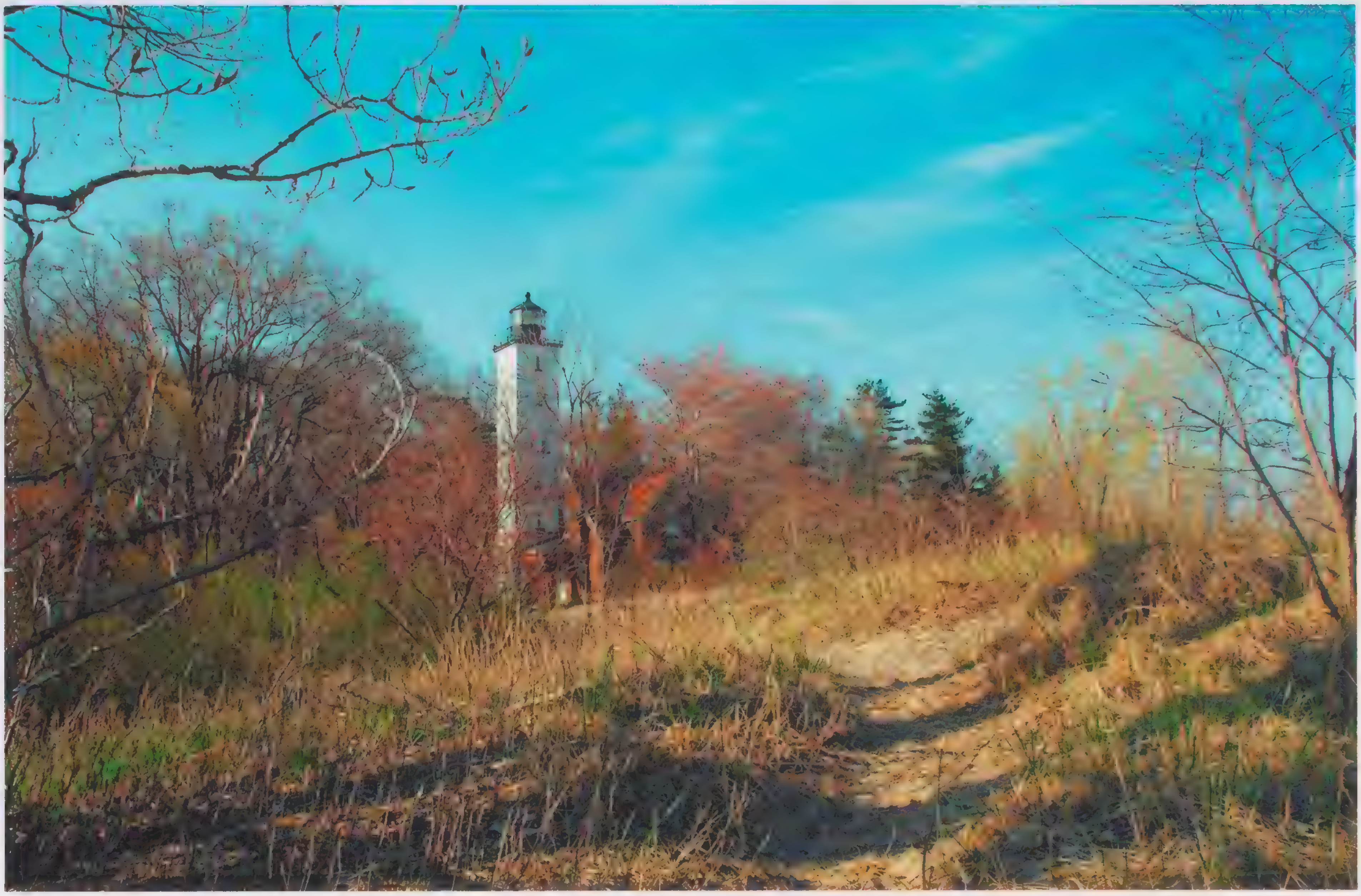
But even in the depths of imprisonment, thoughts of falconry sustain him (and fascinate a mad survivalist who wants him to join his commune!). An editor might question this material's relevance in a less discursive book, but in this *apologia pro vita sua* it works.

As does the theme of Emperor Frederick II, though I wish there were more. Frederick deserved his title "Stupor Mundi"—the Wonder of the World. He was a Holy Roman Emperor who grew up as a street kid in Sicily, assumed the throne at 16, was accused of being the anti-Christ, was excommunicated twice. He had a court of Muslim and Jewish philosophers, artists, and physicians. He defeated an Arab guerilla army in Sicily and made them into his mercenary guard, settling them in the city of Lucera on the mainland of Italy and building them a mosque. He wrote the first scientific ornithology under the guise of a falconry manual, and was the first scholar to describe bird migration.

Oddly, although the rest of the travelogue material is spectacularly successful—sage-grouse hawking in the deserts of Wyoming, chasing crows on horseback in the north of England with eccentric scientist Nick Fox, meeting the remnants of England's traditionalists on the moors of Scotland—his pursuit of Frederick II in Italy is frustrating. Part of the trouble is logistics: he was traveling in winter in the most untouristy part of Italy.

He finally achieves a sort of catharsis sitting illicitly on Frederick's throne, but he feels only a weary identification with the emperor's struggles. "I'd read so many books about him . . . and now I was traveling through his realm, digging into his past, and it was a sad story: one of thwarted ambitions, of dreams unfulfilled." The rest of the trip is a seriocomic disaster of stolen luggage and worse.

And yet he returns home at peace: in his 12-month journey, he has purged his memories and finally understands, as Frederick did, that falconry is a pursuit that gives a certain kind of person passion and direction through life. "I realized that falconry didn't create the kind of person I am . . . what it did was provide the perfect outlet for me. I could focus all my energies on a sport—an art, really—that was all-encompassing, that would take years to perfect." And he adds: "I knew I'd never give up the sport again, come what may." ◆


TIM GALLAGHER

# Presque Isle, Pennsylvania

Presque Isle State Park is easily one of the top birding spots in North America, rivaling famed Point Pelee—its across-the-lake Canadian counterpart—and it is less than two hours away from Pittsburgh, Cleveland, and Buffalo.

Despite its name, Presque Isle is actually a 3,200-acre peninsula arching into Lake Erie. They say location is everything, and in this case it's true. The peninsula's location makes it a jumping off point for northward migrating birds crossing Lake Erie in spring and a first landfall for many southbound autumn migrants. The bird list is enormous—more than 320 species, including numerous warblers (such as the Northern Parula at right), waterfowl, and shorebirds. The migrant warbler watching is best in mid-May and September. Shorebird numbers peak in April and September, and the best time to see a variety of waterfowl is in March and late November through December.

This is an ideal place to take a nonbirding spouse or children, because there are so many other things to do—swimming, canoeing, hiking, fishing, bicycling, and more—and it's a beautiful place, with beaches, woodlands, and marshes. For more information, visit www.presqueisle.org. —*Tim Gallagher*

BOBBY HARRISON

**DIRECTIONS:** Drive on I-90 to Erie, Pennsylvania, then take I-79 North to exit 183B. Drive west on 12th Street. At the fourth traffic signal, turn right onto Peninsula Drive (Route 832 North) and follow it to Presque Isle State Park. You'll see the Tom Ridge Environmental Center (free admission) on the right just before reaching the park.

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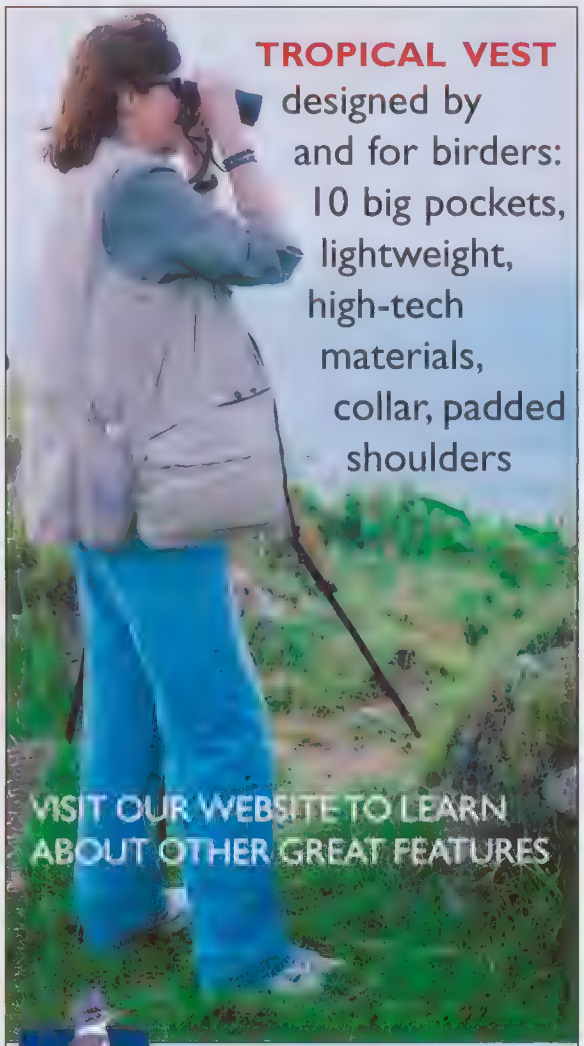

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# The Things I Would Have Done Differently

*by Pete Dunne*

*Illustration by Jeff Sipple*

Looking back upon what even the most miserly of panels would judge to have been a rich and eventful life, I find very few matters to gainsay (meaning that given a do-over, I wouldn't change very much).

OK and for the record, if given the chance again, I would kiss Lynn Hundley. I would not throw the rock that cost my parents a new picture window. I would buy gold when it was down around $240 an ounce.

When it comes to birds and birding, I find that I have even fewer regrets—which is not the same as saying that the scroll is blank. There are indeed things that I would now do differently. Here, for your edification and my catharsis, are a few.

1. As a kid, I would have joined a local bird club. Being by nature a private person, I pretty much birded on my own until I was in my twenties. As a result, I never tapped into the institutional memory of the birding community . . . never discovered that there were such things as field guides; didn't know how to tell Wood Thrush from Hermit Thrush; had no idea that every year, on my birthday, 10,000 Broad-winged Hawks were passing over my head en route to Central America.

If I'd been associated with a club I would have had a 20-year jump on developing my birding skills. And I would have been a better birder today.

2. I wouldn't have purchased that Telemaster spotting scope. The guy behind the counter of the sporting goods store clearly didn't know what he was talking about (but I knew even less). The choice was between a Bushnell Spacemaster and the Telemaster—the one that had the advantage of being able to "zoom right in on your quarry."

He really did say "quarry." And I bought the Telemaster less on the strength of his conviction than on the zoom's higher price tag. The happiest day of my life was when that overweight and underperforming instrument got stolen, and I went right out and bought the Spacemaster I should have gotten in the first place.

3. Back in 1975, I would have gone for the Newburyport Ross's Gull. My knowledge of the bird came from a homeowner in Mountain Lakes, New Jersey, who was down on our work sheet for a living room, dining room, hall, and stairs. As one of a two-person carpet installation team, he had just one question for us: "How fast can you get the carpet down?" The overnight bag and spotting scope parked next to the door underscored the guy's urgency.

"You a bird watcher?" I asked.

"Why yes!" he said. "Do you know about the Ross's Gull? I'm driving to Newburyport as soon as you guys finish. Everyone'll be there."

I knew what a Ross's Gull was. I had no idea where Newburyport was. And being a lone birder, "everybody" didn't include me. We got the carpet down in record time. But I still missed the "bird of the century."

4. I would not have been talked out of publishing my uncomplimentary (but accurate) review of the "Insta-focus" spotting scope—the one with the teeter-totter focus mechanism that was impossible to get sharp. The designer swore they were going to fix the problems. Then they dumped the whole sorry lot on the market at a bargain-basement price. The scopes have mostly been relegated to the junk heap. But every time I see someone with one of those shoe-box shaped instruments I go over, give the person a consoling hug, and say: "I'm so sorry."

5. After David Sibley moved out of Cape May Bird Observatory, I would have gone up to his room and salvaged the strata of pen-and-ink sketches, discarded watercolors, and half-finished illustrations that carpeted the floor. Instead, the room was sanitized by some unknown, and unknowing, Samaritan. The scrap paper was put on the curb. And a lot of priceless archival work is now sitting under a few million tons of kitchen scraps, Styrofoam nodules, Wal-mart plastic—and the odd discarded spotting scope or two.

Sorry, David. But at the time, who knew? ◆

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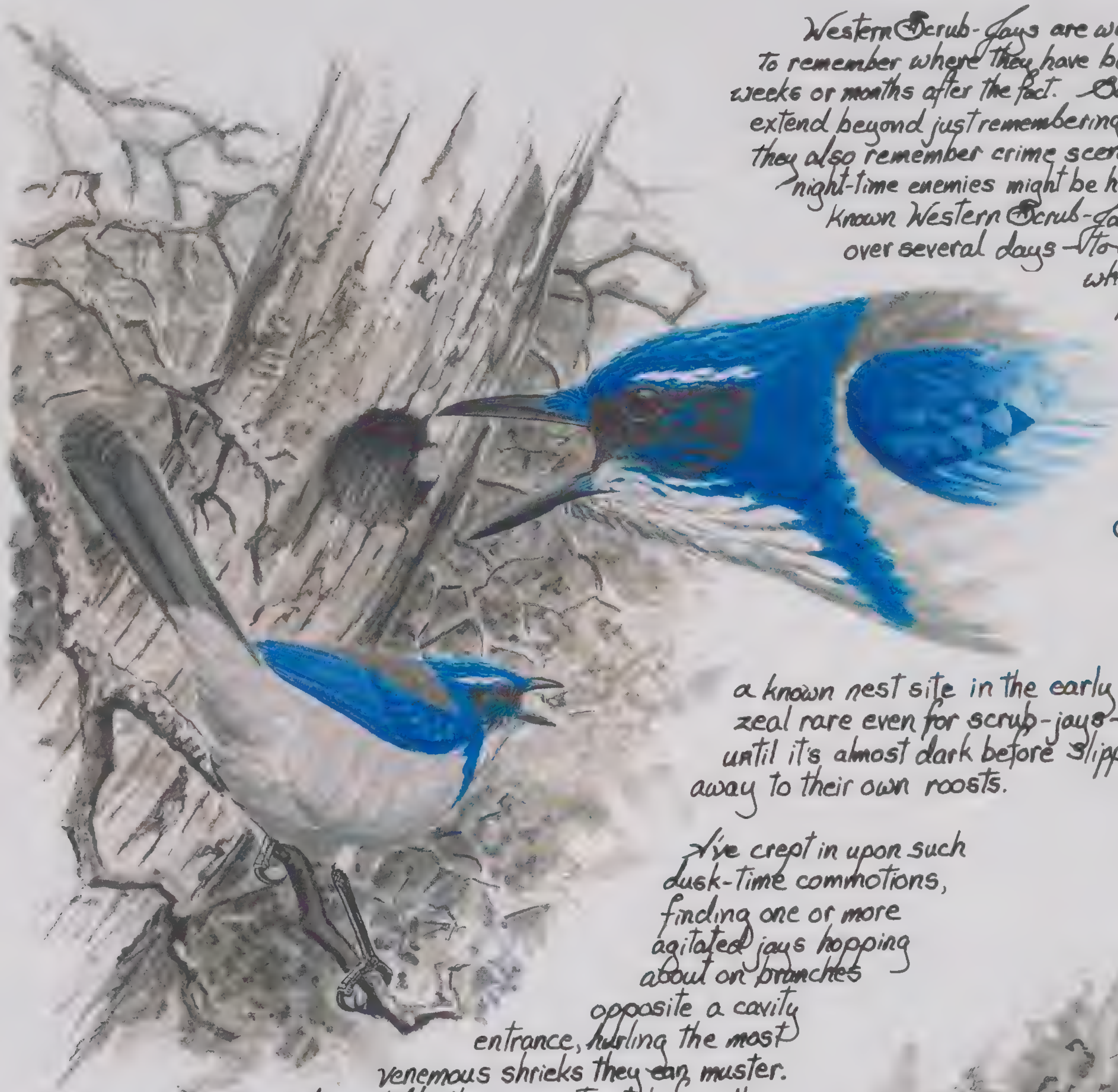
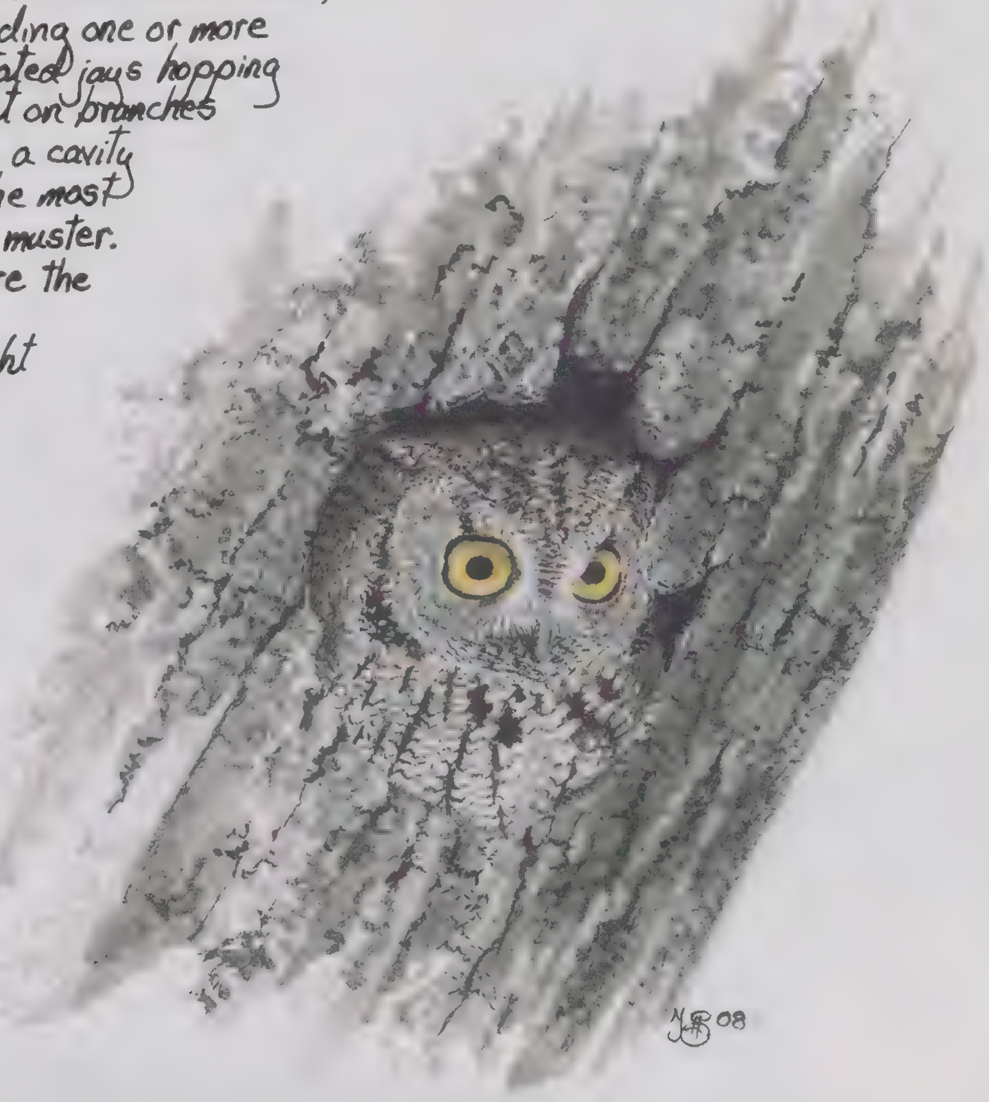
# A Naturalist's Notebook

*by John Schmitt*



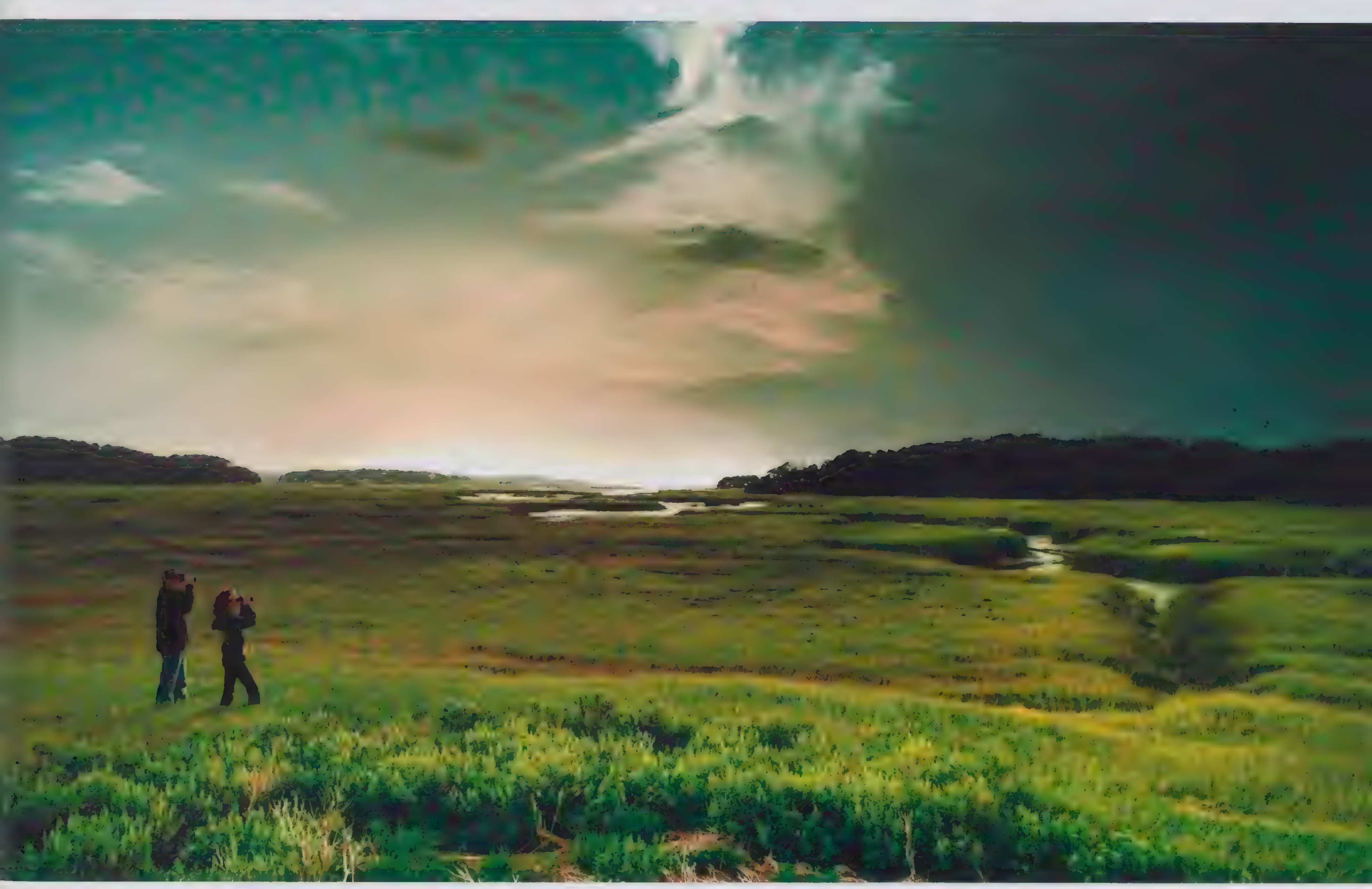
Western Scrub-Jays are well known for their ability to remember where they have buried food items, often weeks or months after the fact. But their capable memories extend beyond just remembering where they hid an acorn: they also remember crime scenes and where their night-time enemies might be hidden. For example, I've known Western Scrub-Jays to return repeatedly—over several days—to a site hidden in cover where a Cooper's Hawk had consumed its prey, and there raise a din over a forlorn mess of feathers. And scrub-jays often know where the local Western Screech-Owls nest or roost. As self-appointed wardens of their domains, they sometimes go to a known nest site in the early dusk and—with a zeal rare even for scrub-jays—shriek and fuss until it's almost dark before slipping away to their own roosts.

I've crept in upon such dusk-time commotions, finding one or more agitated jays hopping about on branches opposite a cavity entrance, hurling the most venemous shrieks they can muster. But inevitably the jays retreat before the advancing darkness, and sometimes, after enough time has passed and night has all but completed its conquest, a small owl's face will appear at the cavity entrance—wide yellow eyes blinking.



WHEN WAS THE LAST TIME YOU HAD TO REMIND YOURSELF TO BREATHE

WHILE STARING AT AN ORDINARY SWALLOW?



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# LIVING BIRD

*Autumn 2008 Volume 27 / Number 4*

CORNELL LAB *of* ORNITHOLOGY

*Our Mission: To interpret and conserve the earth's biological diversity through research, education, and citizen science focused on birds.*

*Cover:* A male Harlequin Duck stands stoically on a rocky shore in New Jersey as a crashing wave rains water down upon him. Photograph by Cliff Beittel.

*Back cover:* An immature male Northern Parula perches in the afternoon sun in early autumn. Photograph by Mark Bilak.

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Cornell University

## *Letters*

MARIE READ

## Bombs Away

Marie Read has provided an informative and useful portrait of photography at the famous Bosque del Apache refuge in New Mexico. However, she failed to provide one essential piece of advice. She made no mention of "defecation protection." When, "with a blizzard of wings and a roar of cackling voices, thousands of Snow Geese take to the air" and swirl over unsuspecting photographers, the unwary and their cameras and cars will be splattered with goose droppings. It is a most unpleasant experience, and I speak from experience!

WOODY THOMAS
NAPLES, NEW YORK

## Science Phobia

Your Spring 2008 issue was without a doubt the best *Living Bird* in years. I would like to respond to The View from Sapsucker Woods, by John Fitzpatrick.

We have lived through nearly eight years of science phobia (a huge resounding slap in the face to the historical efforts of many before us) while living in a society that has greatly benefited from this hard thinking as if it did not take our support and confidence. Just for instance, consider our risks without the current and deep biological advances on the evolution of pathogens, and the medicines we now all take for granted. Fitzpatrick makes the case that our "ethical choices" include aspects of faith and that "spiritual expressions inform." That is being generous, and I will accept that within the larger dialogue it must be included.

More to the point, his advocacy for "organized curiosity" compels us all toward greater observation, which birding offers in spades. The only way to instill this across our culture is to begin early and offer teachers a tangible sense of autonomy in the classroom environment. Under our current regime of science value denial, we have lost precious ground, based on standardized testing. I would like to see the candidates address this issue, for without that autonomy we will be stuck in an ugly cycle of sterilized teaching methodology that simply does not work. If you aren't inspired in your early years, it is a long uphill climb to reclaim that "forever curious" part of us.

Many thanks to John Fitzpatrick for taking part in this important dialogue.

SCOTT JACKSON-RICKETTS
INDEPENDENCE, VIRGINIA

## Another Egg

In the recent issue of *Living Bird*, there is a picture of sculptor Andy Goldsworthy and his "egg" at Sapsucker Woods (Around the Lab, Summer 2008). This picture brought back some wonderful memories. A similar egg sculpture by Goldsworthy stands in front of the Art Museum in La Jolla, California, where I now live. As I understand it, the egg was part of a three-structure feature that spanned the United States, one here, one in the middle of the country, and one on the East Coast. I "discovered" Andy Goldsworthy when I moved here five-and-a-half years ago and have marveled at his creativity ever since. I am glad you have one of his sculptures where you work.

I am a Cornell graduate, class of '55.

GERRI JONES

I was in the last ornithology class that Arthur Allen taught along with Dr. Riseborough, although we didn't know each other at the time. We only discovered it in the late 1960s when the Environmental Defense Fund was battling to ban DDT and he testified in one of the court proceedings.

After leaving Cornell, I taught science at Bellport High School for 33 years including teaching a full-year course in ornithology from 1970 to 1989. Two other teachers carried on the course for another decade after I retired. I know of no other full-year course in high school then or now. This course had many parents including Dennis Puleston but the ornithology course at Cornell was the major incentive. And, Bill Dilger was the lab instructor in Arthur Allen's course. Small world.

ART COOLEY
FUNDING TRUSTEE
ENVIRONMENTAL DEFENSE FUND
LA JOLLA, CALIFORNIA

## *From the Editor*

In the last issue of *Living Bird*, Lab of Ornithology director John Fitzpatrick wrote a column about a major land-use agreement hammered out this past May between the Tejon Ranch Company—which owns the largest piece of private property in California—and five major conservation organizations to preserve 90 percent of the Tejon Ranch from development forever (see The View from Sapsucker Woods, Summer 2008). Nearly 422 square miles in size, the ranch includes some of the most spectacular and vital habitat in the state, home to California Condors, Spotted Owls, Tricolored Blackbirds, and other species threatened with extinction. In return, the conservation organizations agreed not to fight development projects on 10 percent of the company's land along the Interstate 5 corridor.

Of course, it was a controversial agreement and has generated heated discussions among environmentalists. We decided to publish an in-depth article about the Tejon Ranch agreement and invited Gary Langham of Audubon California to write it (see "The Deal of the Century?" on page 22). We'd like to hear reader comments both pro and con about this unprecedented agreement.

I was deeply saddened to hear of nature photographer Tom Vezo's death this past July. Tom was a good friend, and I have fond memories of traveling across the tundra with him, photographing Arctic shorebirds while desperately trying to avoid being eaten alive by mosquitoes. A true artist, Tom was always brimming over with creativity, enthusiasm, and a willingness to work hard. But he also had strong ethics and would never do anything to put a bird at risk for the sake of a photograph. He will be greatly missed. We are pleased to present a portfolio of Tom Vezo's work and a remembrance by fellow photographer Marie Read on page 40.

*Tim Gallagher*
*Editor-in-Chief*

## Evil Paper?

Your Summer 2008 editorial response to a concerned reader implied that using paper was evil—more so than using plastic protective covers during shipment of *Living Bird*. I could not disagree more. I am not prepared to debate the energy balance of producing paper bags versus plastic bags, but I do know that paper is a renewable natural resource, plastic is not. Growing trees and other plants to produce fiber that can be turned into paper removes carbon dioxide from the atmosphere. Producing plastic does not. Many birds delight in making homes in renewable forests. Few, if any, take comfort in fields of oil derricks. I am certain you are appalled at deforestation. So am I. I think you are wrong, however, to provide a blanket label on the use of forest products as evil. Birds would be better served if you would instead promote and applaud conservation and good stewardship of sustainable forests managed to serve birds and other wildlife, as well as provide renewable products for society.

STEVE WEBSTER
FAMILY FOREST OWNER
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We welcome letters from readers. Write to The Editors, *Living Bird*, 159 Sapsucker Woods Road, Ithaca, New York 14850, or send email to livingbird@cornell.edu.

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EDUARDO IÑIGO-ELIAS (2)

# Preserving Wild Parrot Populations

The Yellow-headed Parrot is arguably the most popular pet parrot with its brilliant green, red, and yellow feathers and its glib tongue. But that popularity has also been its downfall. Native to Belize, Honduras, Guatemala, and Mexico, the wild population of this species plummeted from 70,000 birds in the mid-1970s to an estimated 2,000 today, though an exact number is still to be determined.

"This species has been the number one bird for the illegal pet trade," says Eduardo Iñigo-Elias, coordinator of the Neotropical Conservation Initiative at the Lab. "Thousands of them were taken from the wild. They have little fear of humans and are easy to catch." A key step in protecting the wild parrots is to find out where they are and how many are left—a process now underway in Mexico.

Wild Yellow-headed Parrots exist in only three places in Mexico: the northeast (about 500 birds), the Pacific coast (there may be only one breeding pair left), and the Tres Marias Island Biosphere Reserve, located 60 miles off the west-central coast (unknown population). Iñigo-Elias jumped at the invitation to join a team surveying flora and fauna on the Tres Marias, a joint project of the National Autonomous University of Mexico

*The number of wild Yellow-headed Parrots (above) has plummeted from 70,000 in the 1970s to about 2,000 today. Below, the Tres Marias Islands.*

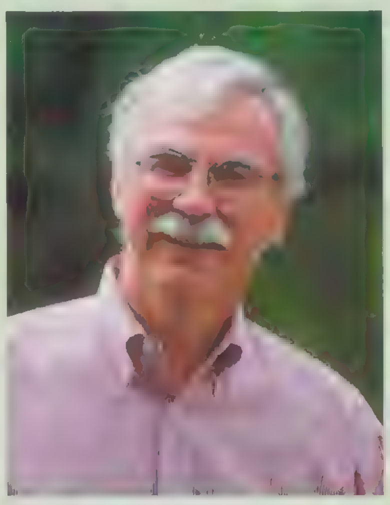
# *The View from Sapsucker Woods*

Thirty-five years ago our country's leaders brought forth the most important environmental law ever created. The Endangered Species Act was grounded on two unique propositions: 1) society must not knowingly allow any species on our land or in our waters to go extinct; 2) the purpose of saving species from extinction is to protect the ecosystems upon which these species, and ultimately we humans, depend.

The Act has withstood numerous tests. Since its passage, minor amendments have facilitated implementation in our real-world places of residence, agriculture, and commerce, but the Act's fundamental assertions—the inalienable right of every species to exist and the value of species as indicators of ecosystem health—remain both intact and popular.

Now we are engaged in another great test of the Act and its propositions. Previous battlefields—mainly courtrooms and legislatures—promoted spirited debate, public discourse, expert testimony, and compromise. Today's threat hides under the cloak of anonymity called the Federal Register. Tacticians designed this latest challenge to minimize debate, and its outcome appears premeditated.

The Act consists of 18 sections, about half of which specify precautions designed to minimize or mitigate potential threats to endangered or threatened species. Long a bedrock of the Act, Section 7 requires that any action contemplated or funded by a federal agency and potentially jeopardizing an endangered species be subject to independent consultation and review by expert biologists in the U. S. Fish and Wildlife Service or the National Marine Fisheries Service. New regulations quietly proposed by the departments of Interior and Commerce (Federal Register, Vol. 73, no. 159, Friday, August 15, 2008, pps. 47868-47875) would free all federal agencies to conduct their own reviews. Minerals Management Department, Army Corps of Engineers, Department of Transportation, and scores of other agencies employing no professional biologists may soon be free to decide for themselves whether their actions might jeopardize endangered wildlife.



I have studied the proposed new definitions and regulations, and they horrify me. Far from being "common sense" revisions to the Act, as self-described in their preamble, many of these changes represent radical alterations to certain of the Act's most crucial safeguards. Most important and pivotal to the demonstrated success of the Act has been its explicit requirement that listing decisions and jeopardy opinions be judged solely on the best available science. The proposed regulations would critically injure this requirement. Decisions previously based on independent evaluation of scientific evidence by trained experts will be made by untrained managers and bureaucrats inside the very same agencies proposing the action. Sacrificing the crucial buffer of independent scientific review promotes all the foxes in federal agencies (plus private licensees and contractors) to become guards of their own henhouses.

Common sense tells us that being a self-referee does not work on the highway or the soccer field, and it will fail even more grossly when it is subject to the bureaucracies and conflicts-of-interest inherent in federal agencies. Indeed, a recent U. S. Fish and Wildlife Service audit revealed that federal projects conducted in the absence of independent review violated the Act an astonishing 62 percent of the time. Courts repeatedly have overturned federal projects that waived endangered species review. In a host of respects too numerous to list here, the proposed new language invites ever more flagrant violations of the fundamental propositions upon which the Act was founded.

Presumably to expedite implementation of the new regulations, the departments took the unusual steps of limiting public comment to 30 days and refusing to accept comments by email. Unless the official comment period is extended (see www.regulations.gov), the world's most important environmental law is being viscerally wounded as you read these words.

*John Fitzpatrick*
*Louis Agassiz Fuertes Director*

JON REIS

and the Mexican government's National Institute of Ecology.

The islands are covered primarily with tropical dry forest—green during the rainy season, desert-dry when the rains stop and temperatures climb to more than 100 degrees Fahrenheit. Only the largest island, María Madre, is inhabited by people and is the site of a federal prison—the Mexican Alcatraz. All four islands in the group are now protected—home to endemic species of plants, birds, reptiles, and mammals. The seas around the islands teem with whales, dolphins, sea turtles, fish, and seabirds.

Three survey trips have taken place already, and two more are planned. Three of the four islands have been explored by the survey team. According to preliminary estimates, roughly 300 Yellow-headed Parrots live on the islands the team visited. Of those, Iñigo-Elias says there are perhaps 100 breeding pairs (200 birds). In addition to the endangered parrot, the team is surveying the islands' population of Mexican Parrotlets, a species not yet endangered but considered vulnerable.

"After the surveys are complete, we'll report to the Mexican government and offer recommendations on how to manage the Yellow-headed Parrots," says Iñigo-Elias. "We'll also provide a collection of audio recordings for environmental education projects, not only to train biologists but to encourage people to be proud of their island birds and to understand that it is important to protect them and not support the illegal bird trade." Sound recordings of the island birds will also become part of the Lab's Macaulay Library archive.

Despite rough seas, heat, humidity, and detours by the survey team's gun-toting Navy escorts to chase down fishermen poaching in protected waters, Iñigo-Elias says, "I love being in the field rather than an office. It's just a spectacular privilege to be in places like that!"

*—Pat Leonard*

## Live from the AOU Meeting . . .

It is 5:45 P.M. The final talk of the American Ornithologists' Union annual meeting in Portland, Oregon, has just ended, and the feeling rippling through the Portland Hilton Tower is not unlike the last day of eighth grade. Professors, postdocs, and grad students spill into the hallways, bumping into old friends they hadn't run into yet, even though it's the last day.

A tremendous burbling winds up the escalators and into the atrium, where everyone talks at once about incubation strategies, single nucleotide polymorphisms, and where they're going for dinner. The hotel's weekend arrivals are already here, organizing their luggage in the lobby—a wedding party in khaki shorts, vacationers in business casual. They see the horde of sun-weathered biologists ascending the stairs, and head for the elevators.

Hugs are exchanged; reunions planned. People recap their favorite talks and float ideas for collaboration, or flop in leather armchairs looking worn out. More than one distinguished professor eyes the cash bar.

Graduate students in plaid shirts and grimy caps, t-shirts and sandals, make resolutions about setting up a long-term research project like Rosemary Grant's, in the Galápagos, or Peter Arcese's, off Vancouver Island. Everyone has that intent look that comes from keeping a lot of new information in their minds for just a little longer than they thought they were capable of. Then they head off to the banquet and let the ideas fall where they may.

In just the last nine hours, I've witnessed murder by cowbird; discovered that mosquitoes breeding in gas-well ponds are making sage-grouse sick with West Nile virus; learned about mercury contamination in Tree Swallows and Red-eyed Vireos; heard that songbirds carry surprising amounts of bird flu (don't worry, not the virulent kind); watched the results of Project FeederWatch in tracking West Nile virus in Illinois and Michigan; met some feather mites with a sweet tooth for preening oil; and been persuaded by Lab director John Fitzpatrick that we have better things to do with our time than worry about the exact definition of a subspecies.

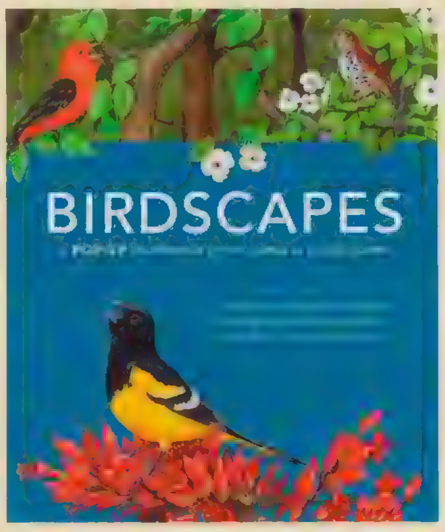
That was before lunch. The afternoon brought discussions of wind-power turbines' effect on birds, followed by how to count birds using radar and night-vision goggles. The Lab's Fuller Evolutionary Biology professor, Irby Lovette, delivered some bad news about using small regions of DNA to estimate something called "heterozygosity." Cheryl Sesler, of the University of Tennessee at Martin, announced that Yellow-bellied Sapsuckers seem to have wood-digesting bacteria in their guts, much like termites. And Ken Dial, of the University of Montana, gave some closure to the meeting by explaining how he thinks flight evolved in the first place.

Perhaps I'm just light-headed from blood loss (I joined some 200 attendees who gave blood in a UCLA study to examine whether people who handle birds show any exposure to bird flu), but I think that's enough new ideas for one week. *—Hugh Powell*

*To read Hugh's complete blog posts about the AOU and ISBE meetings, visit his pages posted August 4–15 at http://redesign.birds.cornell.edu.*

# A Pop-up Bird Book?

The popular *Birdsongs* books from Chronicle Books and the Cornell Lab of Ornithology make it possible to read about birds and hear their sounds at the push of a button. What's next? The newest book in the series, *Birdscapes*, opens up into elaborate pop-up landscapes with birds and stereo sound. Written by Miyoko Chu, director of Communications at the Lab, the book features the vibrant sounds of landscapes from Arctic tundra to Sonoran desert.



All the sounds come from the Macaulay Library's archive, including new recordings from the Lab's "Big Year" expeditions. Turn the page to the seabird colony, and a jagged, rocky island sticks up from the sea, accompanied by the roar of seabirds.

"We included the sounds of nocturnal Fork-tailed and Leach's storm-petrels recorded on Saint Lazaria Island near Sitka, Alaska, just last year," said Chu. "Our recordists lay in sleeping bags with microphones as the air and ground pulsated with the sounds of storm-petrels flying overhead and courting in the burrows below."

Open the page to the southern swamp, and you see birds wading beneath gigantic moss-draped trees. "We also chose some recent recordings for the swamp scene," Chu said. "No sleeping bags this time: the recordists waded through alligator-infested water to record the calls of White Ibises, and they came out of the swamp bloodied after fighting their way through sawgrass to record the King Rail."

The Lab's audio production engineer, Gerrit Vyn, worked with book producers becker&mayer! to weave the recordings into a seamless sequence evoking the sounds of each scene. Looking and listening your way through the book highlights how the sounds of birds are an unforgettable and defining feature of any landscape.

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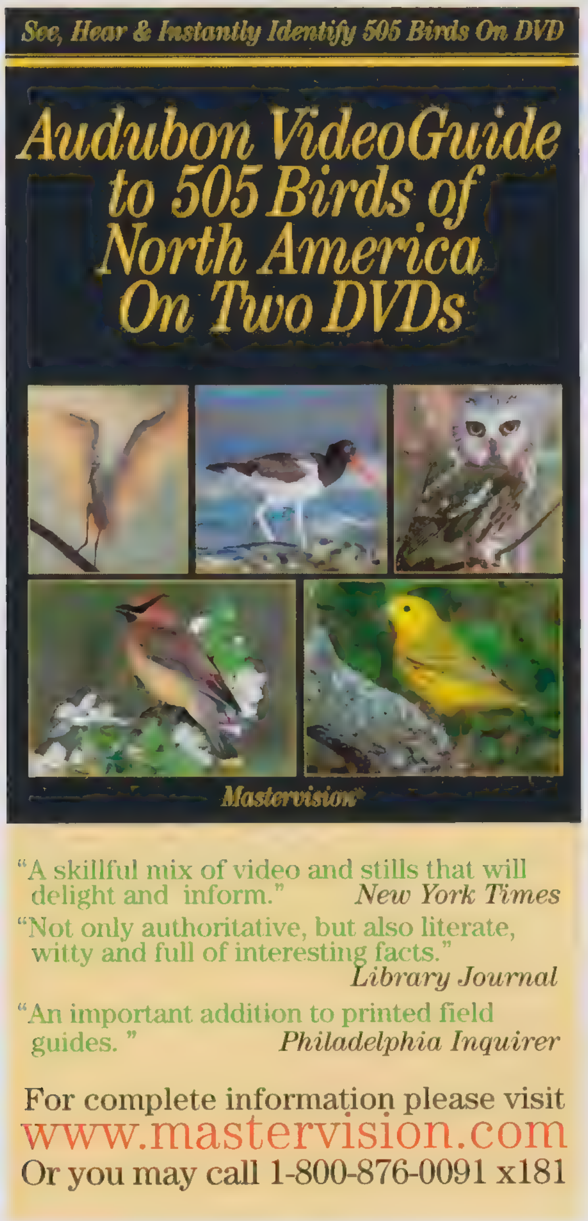

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BRIAN SULLIVAN

*Although Swainson's Thrushes (left) look fairly similar wherever you encounter them, the birds that breed along the Pacific Coast have very different migration strategies from those that breed inland.*

# Dividing Via Migration

Even common birds may hold deep biological secrets. The Swainson's Thrush is familiar to many people, because it breeds throughout much of the coastal and mountain regions of western North America, and in northern forests from Alaska to Newfoundland. Birders who never get to hear this species' haunting springtime song are likely to encounter the Swainson's Thrush during its migration to and from its tropical wintering sites in Central and South America.

Unlike some widespread birds that look very different in different parts of their range, the Swainson's Thrush seems on the surface to be basically the same bird wherever you find it. Those that breed in the coastal Pacific region from Los Angeles to Juneau have back feathers that are subtly more reddish than their inland, olive-backed counterparts, but picking out this slight variation in color requires a discerning eye and long experience.

This barely perceptible variation in color, however, masks much more dramatic differences in the breeding and migratory behavior of these two types of Swainson's Thrush. In 2002, a group led by Kristen Ruegg used a combination of banding data and genetic techniques to discover that Swainson's Thrushes from Pacific Coast breeding sites fly south along the coast, taking a fairly direct route to their wintering locations in Central America.

Inland birds do something more surprising: most of them follow their ancestral migratory path south through eastern North America and across the Caribbean basin to reach their wintering sites in South America. For an inland-type thrush that breeds in western Alaska, this means making a dogleg journey across the continent from west to east before turning south.

This discovery that the two types of Swainson's Thrush have dramatically different migration pathways led Ruegg to a new question: what happens where the two forms interbreed? After much searching, Ruegg found a valley in southern British Columbia where the forms hybridize across a narrow, 50-mile-wide zone. In a new study, she has described this hybrid zone in detail, again using a combination of field measurements and genetic assays.

It turns out that hybrids between the two Swainson's Thrush forms are less common than one might expect, and in fact Swainson's Thrush densities overall are low in the area where the two forms meet. This pattern could be explained in many ways—perhaps it is just that the habitat in that area is not particularly suitable for Swainson's Thrushes—but an intriguing possibility is that this hybrid zone is an example of a so-called "migratory divide," the overlapping breeding location of two bird populations with highly different migratory behaviors.

The migration behavior of songbirds has a high degree of genetic programming, but this programming can be disrupted when hybrid offspring inherit a mix of both parents' traits. Swainson's Thrush hybrids resulting from interbreeding between coastal and inland parents may be at a distinct disadvantage, because they are programmed to migrate either at the wrong time or in the wrong direction.

When this disadvantage to hybrids is strong enough, it can even lead over time to the formation of two new species, a process that might be starting in these thrushes that are otherwise so similar.

*—Irby Lovette*

Ruegg, Kristen. 2008. Genetic, morphological, and ecological characteristics of a hybrid zone that spans a migratory divide. *Evolution* 62: 452–466.

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# Relaxing in the Tropics

The tropical regions of the Americas are known for their spectacular diversity of birds, from antbirds and aracaris to woodcreepers and xenops. The avian richness of many tropical habitats can be bewildering in its range of colors, songs, breeding behaviors, and foraging styles. Yet ornithologists have long known that underneath this diversity lie some general patterns that consistently distinguish tropical birds from their temperate-zone relatives.

One such difference is in the physiological pace of life experienced by tropical birds. In human terms, we sometimes think of the tropics as a slow-paced setting, a place of long siestas and relaxing beachside vacations. The reality for humans is more complicated, but it turns out that this stereotype is true in part for birds: compared with species in more extreme environments, tropical birds generally take longer to reach adulthood, lay fewer eggs in their nests, and live longer lives overall.

What forces underlie these differences? In a new study, a group of researchers set out to explore tropical birds' pace of life at an even more fundamental level, by comparing how much energy birds from different continents require to support their varied life routines. The researchers accomplished this by measuring hundreds of birds' oxygen consumption while they were at rest, providing a measure of the calories required for the baseline support of the bird's organs, muscles, and general physiology.

The researchers worked with birds from both lowland Panama and Ohio, and they carefully controlled for many other factors, such as body size and evolutionary relatedness among species. They discovered that on average, the Panama birds used 10-20 percent less energy, a finding that supports the general trend of tropical birds having a slower pace of life.

In an additional twist to their study, the researchers also compared Ohio bird species that migrate to the tropics with species that live in Ohio year-round. The migratory species had energy-use patterns that were in-between those of their tropical and temperate counterparts, a finding that came as a bit of a surprise since migration itself is such an energetically intensive endeavor. You might reasonably expect that the migrants would have the highest baseline energy use, but instead these results suggest that the migrants have evolved to function well across a range of environmental settings.

A likely reason that tropical birds can get away with expending less energy is that they face low risk from cold temperatures. A chickadee in Ohio must maintain the ability to warm itself when the temperature drops well below freezing, but a similarly sized antwren in Panama will never face that challenge, and it can pace its life accordingly.

*—Irby Lovette*

*Is life in the tropics really easier for birds, such as the Red-capped Manakin (below) or the Common Tody-Flycatcher (right)? According to a recent study, the answer is yes.*

MARIE READ (2)

Wiersma, P., Munoz-Garcia, A., Walker, A., and Williams, J.B. 2007. Tropical birds have a slow pace of life. *Proceedings of the National Academy of Sciences USA* 104: 9340-9345.

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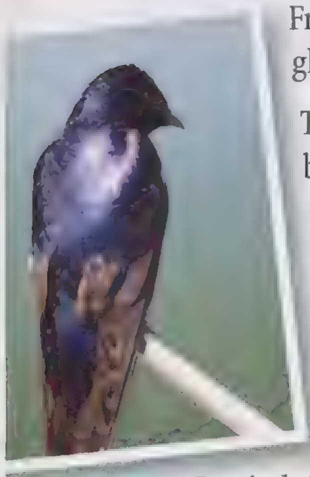

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# Straight—No Chaser

*by Mel White*

## *It's time to reconsider traveling just to add a checkmark to a list*

Not long ago I thought about writing an op-ed piece for the local newspaper entitled "Gas Doesn't Cost Enough Yet," but then it occurred to me that the time-honored practice of caning journalists might not be completely dead.

Though I chickened out on the article, I still hold to the idea. As I write, a barrel of oil is going for close to $100 again, only to have Hurricane Ike show how volatile the pricing and distribution system really is. There seems little doubt that the world's energy paradigm has changed forever. With Asian economies competing for fossil fuels, adding to a growth in demand that already outpaces discoveries of supplies, any price decrease seems sure to be temporary. The era of prosperity fed by artificially cheap oil is over and, despite the hardships its end is causing, I can't say that I'm completely sorry.

Car dealers are practically paying people to take "full-size" pickup trucks and SUVs off their lots, and factories that build the monsters are closing. Good. Businesses are scheduling more teleconferences instead of flying people to meetings. Good. More commuters are considering mass transit, and bicycle and motor-scooter use is up. Good. More people are moving to revitalized downtowns, where they can walk to stores and entertainment venues. Good.

And—though I have no quantifiable evidence to back this up—I imagine that more birders are hesitating before driving for hours or hopping on a jet to look for a vagrant just to add another checkmark to a state or national list, to which I say: very good.

Before I get all sanctimonious here, let me offer a list of mea culpas. I recently returned from a vacation to the Colorado Rockies during which I spent $437.90 on gas. I watched McCown's Longspurs parachuting in song flight over the plains, Mountain Bluebirds hovering over foothill meadows, and American Dippers dipping in rocky creeks, all the while spewing hydrocarbons and supporting corrupt governments from Saudi Arabia to Nigeria. For 20-plus years I've flown to places around the globe to see birds, simply for my own pleasure. And I've chased vagrant birds, too, canceling Saturday plans to drive 50 or 250 miles to search for some rarity spotted at a reservoir, feed lot, or garbage dump. My carbon footprint, like that of many First Worlders, has been and still is (optional insertion here of word "obscenely") large.

But enlightenment and atonement are cornerstones of religion, right? If it were ever too late to change, there'd be cobwebs growing in a lot of confessional booths. And the catalyst for change doesn't have to be a ray of light from above; it can just as well be four-dollar-a-gallon gas.

A couple of situations, one new and one old, in my home state of Arkansas come to mind in connection with this. The first involves tallgrass prairie in the northwestern part of the state, which once covered thousands of acres but is now reduced to a few isolated patches. Most of what remains has been protected, thanks in part to local birders who regularly visit prairie sites. They documented species such as Short-eared Owl, Willow Flycatcher, Bell's Vireo, Sedge Wren, Grasshopper and Le Conte's sparrows, Painted Bunting, and Dickcissel, as well as non-bird critters such as ornate box turtle and prairie mole cricket, all the while building the case for public ownership. Another parcel of prairie was acquired recently by the state after just such efforts.

By contrast, I remember one January when a Fork-tailed Flycatcher appeared in central Arkansas, attracting a mini-convention of birders the next morning (I was in attendance) hoping to see this stray from the tropics. Lots of $1.19 gasoline got burned that day, nearly everybody saw the bird—and it meant nothing, except that everybody's state and United States lists (and many world lists) advanced a notch. It wasn't a precursor to range expansion, it wasn't an endangered species, it wasn't part of a significant migration trend. It was just a mentally or physiologically defective individual that flew a long way in the wrong direction. When a severe cold front passed through a couple of days later, it no doubt met its Darwinian fate and became, as somebody said, "possum food." There have been others, too, that attracted birders (again, including me) from far and wide: Green Violet-ear, Couch's Kingbird, Sage Thrasher, and Lesser Goldfinch, just for starters.

Southwestern Arkansas is slowly being invaded by "Texas" birds whose ranges are advancing north. Black-bellied and Fulvous whistling-ducks, Neotropic Cormorant, White-tailed Kite, Inca Dove, and Cave Swallow occur with more or less frequency, and Least Grebe and Crested Caracara are on the way. Is the reason climate change, habitat change, or some combination of those and other factors? Whatever the cause, we know it's happening because local birders conscientiously patrol their

RON AUSTING

*Thousands of people from across America flocked to Indiana's Jasper-Pulaski Fish and Wildlife Area when a European Common Crane showed up a few years ago. In the age of expensive gasoline, long-distance travel to see rare birds may be a thing of the past.*

(figurative) backyards, attentive to maps and the calendar, as well as to what's flying and singing around them.

So what's more important: spending six hours of a nice day in a car so you can pull up in somebody's driveway, spot a Calliope Hummingbird at a feeder, and add a dot next to a name on your birding software, or learning the birds in your own area, noting their migration dates and population trends, and documenting habitat changes—especially if you share your information on the Cornell Lab of Ornithology's eBird program? If gas prices discourage the former and encourage the latter, even a little, then OPEC (or the villain of your choice) has done the natural world a small favor.

Maybe I'm fooling myself, but I see a distinction between chasing a single vagrant for listing purposes and vacation travel: planned, saved-for, studied-about, happily anticipated trips to see new birds, experience diverse ecosystems, learn about different cultures, eat odd foods, mangle strange languages, and all the rest of the values comprised by the cliché word "broadening."

We all remember stories of intensely competitive people who heard about a Blue Mockingbird in Arizona or a Collared Forest-Falcon in Texas and quite literally drove to the airport, booked a flight and a rental car, and set off—their primary goal being to maintain their places in the rankings of America's top birders (read: listers). This kind of travel, I think, is broadening only to the ego.

Several thoughtful observers have recently predicted that air travel will soon be restricted to the wealthy and to government officials—we'll see the "de-democratization of air travel" in the words of one self-proclaimed Cassandra. The traditional airline financial model, they say, is unavoidably doomed in an era of expensive fuel. Despite the large carbon debt incurred by jets, I'll be sorry if this comes to pass. I'd hate to think I'll never again hear the wonderfully bewildering sounds of a forest in the Neotropics, or order a *plato Ibërico* of serrano ham and cheese at a sidewalk café in Spain. Never mind the trogons and bustards: I know that travel has made me a more well-informed (and better) person—if only because I now understand that, almost without exception, every American is quite literally rich in the context of our planet. And I've seen demonstrated, time after time, the Pollyanna-ish idea that there are good people in every town and every city in every country. This seems worthwhile.

The best we can hope for, maybe, is some kind of middle ground—a world in which travel is more expensive but still feasible for us plebes, with planning and some sacrifice. No more spur-of-the-moment weekends in the Rio Grande Valley, no more long drives to add Yellow-billed Loon to a year list, but the occasional opportunity to step out of an airport somewhere and smell night air fecund with unknown flowers and fruit. And if not? There's the cold comfort of knowing we have only ourselves to blame.

Five-dollar-a-gallon gas? Europe had that long ago, and most people there drive small cars that get good mileage. There's no reason why every private vehicle in the United States shouldn't get 30 miles per gallon, except that for 30 years the evil triumvirate of oil companies, auto manufacturers, and their friends in Congress have blocked efforts to raise corporate average fuel economy standards. And all the while, average vehicle horsepower in the United States rose from 102 in 1981 to around 210 today. For what?

When I mentioned this column's topic to one friend he wrote, "Despite the fact that I agree with you, I hope you won't come down too hard on the chasers. They inspire and energize the rest of us and put some shine on our local interests—which of course isn't their point, exactly, but it is an unintended consequence." This man takes an admirably clear-headed view of environmental issues and, equally admirably, he can be counted on to point out that few circumstances can be simplified to black and white. Not coincidentally, he has worked with great success on land-use and wildlife conservation matters.

I see what he means, but I think chasers inspire other chasers. "Oh my god, there's a Sharp-tailed Sandpiper at Mallard Lake. If I don't get over there, everybody'll see it but me." I know the feeling, just as I know the feeling of some other urges that I've now decided aren't good for me. In the future, I hope to learn to enjoy even more the birds, butterflies, dragonflies, snakes, lizards, and flora in the natural areas near where I live, and to work to protect them and add to their number.

> *Conservation is ten times more effective than attempting to squeeze the last few drops of oil from the Earth.*

If this comes off as preachy, then so be it. Preachiness is better than the anger that threatens to take over right now, anger that's mostly directed at the fools who, through ignorance or avarice, refuse to admit that conservation is 10 times easier and 10 times more effective than desperate attempts to squeeze the last few drops of oil from the Earth—the "drill here, drill now" morons who can't see beyond the numbers on a gas pump.

"But," some would say, "I'm willing to pay to keep driving my vehicle wherever I want. I like going after vagrants and other rarities; it's my hobby and it's fun and I can afford it."

Very well then, that brings me back to my original point. As long as I see so many people using fossil fuels simply for recreation—blatting motorcyclists riding around aimlessly on weekends, buzzing jet skiers on lakes, roaring ATVers tearing up national forests, and birders driving 500 miles just to put a checkmark on a list—then gas doesn't cost enough yet. ◆

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Keel-billed Toucan ©Jonathan Rossouw

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# THE DEAL OF THE CENTURY?

*by Gary Langham*

*A controversial agreement between the Tejon Ranch Company and five environmental organizations may be the last best hope for saving an irreplaceable wilderness in California*

BHL

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The two Golden Eagles soared above the rolling hills of the southern San Joaquin Valley, about a quarter of a mile from where I stood. The wide slots between the primaries and the white bases of their subadult feathers gave them away long before I lifted the binoculars to my eyes. I had just stepped out of a tour bus along with a couple dozen other visitors to see some geographical points of interest and hear a historical perspective on the endless grasslands before us. A finger of land jutting out to the northeast about 50 miles away was Comanche Point, our guide explained, known as a biodiversity hotspot because it hosts as many as two dozen rare and endemic species of flora and fauna.

I tried to listen, but when Golden Eagles are in the air, they must be watched and considered. Little did I know that before finishing my 80-mile circuit tour, I would see a dozen more—probably more than most active birders see in a year. This alone would have been enough to show me that the Tejon Ranch is like no other place in California.

*On the previous spread, a California Condor soars above a rugged landscape near the Tejon Ranch. Above, wildflowers in spring. At right, a spectacular vista at Tejon Lake.*

"In a state full of incredible natural treasures such as Yosemite and Big Sur, the Tejon Ranch stands with the best of them," said Graham Chisholm, conservation director for Audubon California. "It's also a remarkable place for birds."

The first thing you need to understand about the Tejon Ranch is that it's big. At 272,000 acres—nearly 422 square miles—the ranch is the largest piece of private property in California. It straddles a significant portion of the Tehachapi Mountains, creating a critical ecological linkage where the Central Valley, the Sierra Nevada, the Coast Range, and the Mojave Desert mix. In many ways, the Tejon Ranch is a microcosm of California's natural history—a crucible of geographic, taxonomic, and evolutionary biodiversity.

The second thing you need to know is that thanks to a landmark agreement worked out this past May between the Tejon Ranch Company and five conservation groups, the bulk of this incredible landscape—more than 90 percent—will be preserved forever.

"This will be the largest privately conserved parcel in California history," said Governor Arnold Schwarzenegger when the agreement was announced. "Just to let you know how big this is, this is seven times the size of San Francisco."

The Tejon Ranch is home to hundreds of bird species, including a few from federal and state endangered species lists and at least 20 on the Audubon Watchlist, such as the Spotted Owl, Willow Flycatcher, and Tricolored Blackbird. It holds the finest examples of intact San Joaquin valley grasslands and scrub habitat, tens of thousands of acres of oak woodlands and coniferous forest, and the best examples of Mojave grasslands remaining in California. Tejon is also a crucial stronghold for California Condors. It's no wonder that California conservationists have been determined for decades to preserve this remarkable area.

At the beginning of the 20th century, famed ornithologist and museum curator Joseph Grinnell was actively documenting the fauna of California. At that time, Purple Martins had already switched from natural cavities to bird boxes or holes in manmade structures just about everywhere in the United States. This transition mirrored the modern settlement patterns in the eastern United States, across the plains, and in California.

But in a few locations in Southern California, Purple Martins continued to nest in old woodpecker holes in majestic stands of oak woodlands as late as 1904. That year Grinnell noted, "A few western martins have nests safely ensconced in holes of lofty oaks" at the Tejon Ranch. Many of the locations Grinnell described have been lost to development and altered landscapes, but those stands of lofty oaks are still on the Tejon Ranch—and so are the Purple Martins.

## *Rich biodiversity*

On the ranch, as you climb from the low foothills toward the Tehachapi Mountains, the natural history potential increases. Somewhere in the middle elevations, trees begin to obscure the sweeping views of the valley, and the signs of human activity fade. It's easy to imagine Grinnell and his research team here 100 years ago. Rich hillsides of old-growth incense cedar, live oak, and a white-flowered variety of Ceanothus make you want to stop in the shade and just sit for a while. Apparently, these hillsides had been slated for harvest years ago—for pencils of all things—but

PREVIOUS SPREAD: GARY KRAMER

COURTESY OF THE TEJON RANCH COMPANY (2)

*The first thing you need to understand about the Tejon Ranch is that it's big. At 272,000 acres—nearly 422 square miles—the ranch is the largest piece of private property in California. The second thing you need to know is that the bulk of this incredible landscape will be preserved forever.*

the company went bankrupt just before the scheduled cutting. Now, Violet-green Swallows circle over the road and wildflowers are scattered in every patch of sunlight.

Perhaps more exciting than what we do know about Tejon is what might be there that we don't yet know about. Remember, this land has been in private hands for decades, off limits to everyone but Tejon Ranch employees and occasional private hunting parties.

Michael White, a senior ecologist with the Conservation Biology Institute, has been trying to get a handle on the ranch's biological profile for years. "It's really unexplored territory," he said. "There are huge portions where very little biological investigation has ever been conducted."

White's involvement thus far has been on behalf of environmental organizations that want to know the conservation value of the ranch as the potential for development has increased. They wonder if there's anything worth fighting for there, but because access has been limited, White has had to be increasingly creative about how he gets his information.

"Our data were whatever we could lay our hands on," White said. "There's a lot in the historical texts, but we would also drive up to the edge of the ranch and see what we could see. We also did some helicopter flyovers and utilized satellite imagery as much as we could."

Since the agreement was finalized, White has enjoyed greater access to the ranch and has finally been able to see some of the landscapes he had only been able to speculate about previously. "You really see some amazing distributions of habitat out here—for instance, how it changes from valley oak to blue oak in these primeval landscapes," he said. "The way the land unfolds here is tremendously unique. You see this amazing melding of different ecoregions."

White guesses that when conservationists finally get a chance to do some species surveying, there may be some surprises. For

GARY KRAMER (2)

*The Tejon Ranch provides critical habitat for the California Condor (above and on facing page), one of the world's rarest birds.*

*"We got into these negotiations for a lot of reasons," said Chisholm, "but the condor was our foremost concern."*

instance, given the amount of virgin fir forest on the ranch, he wouldn't be surprised to find some Sooty Grouse, a species many biologists believe has been extirpated from Southern California. "If they were to be in this region, this would be the place, and I can't imagine when people might have last looked for them on Tejon."

But they'll get their chance now, because the conservation agreement contains a number of provisions for public access to this landscape.

"Our agreement provides for unparalleled conservation and increased public access, all of which means birders will eventually have the opportunity to enjoy the natural beauty of Tejon Ranch while identifying the many bird species found here," said Bob Stine, president and CEO of the Tejon Ranch Company.

## *The agreement*

The Tejon Ranch conservation agreement locks in the protection of 178,000 acres, with an option to purchase another 62,000 acres during the next three years, and opens the land to the public for the first time. At the same time, with the deal in hand, the Tejon Ranch Company will now seek to develop about 10 percent of the ranch along the Interstate 5 corridor, including a planned community of 23,000 homes in Los Angeles County and a posh resort community in the mountains.

Negotiations on the agreement took nearly two years. On the conservation side were Audubon California, the Sierra Club, the Natural Resources Defense Council, the Endangered Habitats League, and the Planning and Conservation League.

For the conservation groups, the negotiations presented a unique opportunity to settle the ranch's future and avoid decades of piecemeal legal wrangling with little likelihood of gaining the extensive habitat protection and funding for long-term restoration and management that this agreement represents.

"Of course, no development at all would have been preferable," said Audubon California's Graham Chisholm, who played a major role in the negotiations. "But all you have to do is look around Kern and Los Angeles counties and see what is happening on privately held land to understand that that outcome is just wishful thinking. To commit ourselves to years of fighting for that pipe dream would have been irresponsible gambling with California's most biologically diverse property."

Although the agreement is supported by most of the major conservation players in California, some conservationists feel that the agreement falls short of the complete protection that this land warrants.

"We know that the environmental groups who have negotiated the accord did so with the best of intentions, but we could not sign off on this highly flawed agreement," said Peter Galvin, conservation director at the Center for Biological Diversity. "Virtually all of the areas to be acquired or managed under the conservation easement are undevelopable anyway."

Critics of the agreement have also taken issue with the fact that the conservation groups have agreed not to oppose development in certain areas that are considered critical habitat for the California Condor. The Tejon Ranch has long been recognized as an important foraging site for California Condors, one of the word's rarest birds. Although the species is also found in Arizona and Mexico, thanks to an aggressive captive-breeding and release program, the condor is a distinct part of California's natural heritage, so much so that it was recently included on the state's U.S. quarter. Down to just 23 birds in the world in the 1980s, captive breeding brought the species back from the brink of extinction to more than 300 today.

Audubon condor biologists worked on the ranch in the 1960s, and it was on the Tejon Ranch in 1987 that Audubon and U.S.

BHL

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*The Tejon Ranch provides vital habitat for a host of bird species, such as the Western Kingbird (above) and the Red Crossbill (at right). Thanks to this historic agreement, more than ninety percent of the land will be safe from future development.*

Fish and Wildlife Service employees trapped the last wild condors. Today, half of the roughly 40 condors in Southern California visit the ranch to feed. The long-term recovery of the species depends on its ability to use the Tejon Ranch's vast woodlands and grasslands for foraging and as a steppingstone between the Coast Ranges and the Sierra Nevada.

"We got into these negotiations for a lot of reasons," said Chisholm, "but the condor was our foremost concern."

Supporters of the agreement note that nothing in the document precludes these critics or any other member of the public from participating in the development reviews conducted by the U. S. Fish and Wildlife Service, which has the ultimate say as to whether a given development project might be detrimental to the condors.

Protecting biodiversity on private property is a serious challenge. One option is to create the right political atmosphere for a state or federal land buy-out. This sort of deal recently happened in the Everglades, when Florida taxpayers spent $1.75 billion to buy 188,000 acres from U. S. Sugar. Another option is to oppose development through the regulatory process and litigation. With so many threatened and endangered species on the ranch, this is a viable option. But because the ranch is private property owned by a company with many investors, this approach is risky. Nothing could prevent the Tejon Ranch Company (the corporation that owns the property) from selling off the land in many small parcels.

The Tejon Ranch contains more than 1,000 parcels that could be sold off individually. This sale would perhaps create opportunities for conservation groups to purchase land, but it might also lead to a patchwork of ownership and many fronts on which development must be fought. Could conservation groups fight 1,000 separate development proposals over the next 50 years? Some of the ranch is in Los Angeles County, but the majority is in Kern County. Attitudes toward land development and private property differ greatly between the two counties, with Kern County commissioners leaning toward development.

A final option is to work with the landowner to set aside a large portion of the land under conservation easements while agreeing not to oppose limited development on the remainder. This sort of arrangement was attempted at the Tejon Ranch years ago and failed, but renewed efforts resulted in the agreement announced this past May.

The conservation agreement by itself would have been a noteworthy achievement, but the agreement also provided for a permanent funding stream to pay for the long-term stewardship and management of the protected lands. The conserved land will be managed by the Tejon Ranch Conservancy, a new nonprofit with board members drawn from conservation groups as well as the Tejon Ranch Company. The funding will initially come from loans from the Tejon Ranch, but eventually one-quarter of one percent of the revenues from all future home sales will go to the

GARY KRAMER (2)

Conservancy. The potential revenue from this deal is estimated at more than $8 million a year for conservation about 15 years from now.

Audubon California's Graham Chisholm has been named the chair of the Tejon Ranch Conservancy's founding board, and he has already announced that the first priority will be to find opportunities to improve public access to the ranch.

Although the new Conservancy will probably start opening the ranch to the public through guided tours, opportunities to view the ranch will get a major boost in the coming year when more than 35 miles of the Pacific Crest Trail will be realigned to allow hikers to cross some of the most spectacular regions of the ranch, including the transition from the Mojave Desert to the higher-altitude backcountry ranch. In addition, the partners to the agreement have committed themselves to working to establish a new state park on one or more of the purchased conservation zones.

### *A new frontier, of sorts*

As my own tour of the Tejon Ranch neared the 5,000-foot altitude, the trees changed to white fir and ponderosa pine. This is where I really wanted to explore and try to get a glimpse of a Sooty Grouse. In my mind's eye, I could see one: it would be barely visible about halfway up the fir and near the trunk, perfectly camouflaged. It would be the Mount Pinos subspecies, which, although common in Grinnell's time about a century ago, few living people have seen.

When the climate was cooler thousands of years ago, the white fir and pines still found above 5,000 feet blanketed the entire range. This more contiguous habitat must have produced a lot of grouse and at much lower elevations. As the climate warmed and the trees retreated upslope, the grouse habitat became more and more fragmented. This isolation is reflected in the number of subspecies and the genetic structure of the Sooty Grouse in the mountain ranges of the Pacific and the Rockies.

I was daydreaming about mounting an expedition to find them and whether it would be allowed. My prospects are far better than they would have been at any time in the last century, now that the landmark deal has been struck. I might just get my chance to look for the lost grouse on the Tejon Ranch. ◆

*Gary Langham is director of bird conservation at Audubon California, based in Sacramento, California. In 1999, he was the first recipient of the Charles E. Treman Graduate Fellowship at the Lab of Ornithology, while he was a graduate student at Cornell University.*

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# SCRUBLAND SURVIVORS

## *The precarious existence of the Florida Scrub-Jay*

*by Hugh Powell*

One day late in 2006, Aurélie Coulon arrived in central Florida, put on her sun hat, and set out into the wilds of Archbold Biological Station. Wandering the preserve's 8,700 acres, Coulon was immersed in perhaps the best remaining example of Florida scrub—a strange, chin-high jumble of oaks, palmettos, and rosemary brimming with plants and animals found nowhere else on Earth.

Coulon had just earned her Ph.D. studying roe deer at the University of Toulouse in France—a project that required recruiting 60 or more undergraduates to herd deer into concealed nets, just to catch a handful of study animals. In Florida she would be working with an animal considerably more accommodating.

SIMON FELLOUS

TIM GALLAGHER

*Aurélie Coulon with a Florida Scrub-Jay at Archbold Research Station (left). Coulon's genetic research shows that scrub-jay groups are isolated from each other on tiny patches of scrub. The species faces grave threats as these patches are developed.*

TIM GALLAGHER

*Florida Scrub-Jays may spend their entire adult lives on a territory the size of a large parking lot. Some never leave sight of the shrub where they were born. At right, Lab director John Fitzpatrick has studied scrub-jays at Archbold Research Station since 1972.*

As she held up a peanut and made a low chuckling call, a blue-and-gray bird instantly swooped in from a nearby perch, landed on her outstretched hand, and took the nut.

It was a Florida Scrub-Jay, the state's only endemic bird species and an icon of the parched, sandy hills that fleck the Florida peninsula. The bird is a bundle of contradictions: a jay that's afraid of flying; a suburban bird that can't survive in the suburbs; an endangered species that will perch on your head. And though its jay and crow relatives are among the most adaptable of birds, this species seems incapable of surviving anywhere except in the scrub.

The scrub-jay is on the losing end of a struggle for Florida's dwindling scrub habitat, which is in high demand for housing developments and citrus groves. The bird's population has waned ever since development began to boom in the early 20th century. Now, about 5 percent of the state's original scrub habitat remains, and jay numbers have fallen to less than 10 percent of what they once were. The bird on Coulon's hand was one of fewer than 8,000 Florida Scrub-Jays remaining in the world.

After a few weeks at Archbold, Coulon spent the next two years at the Cornell Lab of Ornithology, analyzing the genetic similarities among the birds in all 21 of the jay's remaining strongholds across Florida. With colleagues including John Fitzpatrick, director of the Lab of Ornithology, and Irby Lovette, director of the Lab's Fuller Evolutionary Biology Program, she uncovered an astounding result: Florida Scrub-Jays fall into 10 geographically separate groups. They mix so infrequently that, genetically, some groups are nearly as different as two related species, the Western Scrub-Jay and the Island Scrub-Jay, are from each other.

The results of the study, published in the journal *Molecular Ecology* in April 2008, are a high-tech affirmation of 40 years of intensive fieldwork that point to the same conclusion: Florida Scrub-Jays behave as if they live on islands, cramming themselves into small patches of scrub and rarely venturing out over foreign territory.

"They just won't fly long distances through prairie, forest, or marsh," says Fitzpatrick, a former director of Archbold Biological Station who has studied the jays since 1972. "You can see them hating it when they try. And their reluctance is part of this glue holding them, ecologically and socially, to the place where they were born."

The tendency to stay home is so strong that it's become a visible part of the bird. Florida Scrub-Jays have long, muscular legs and spend much of their time hopping through scrub or across the sandy ground. When they fly, it's a hesitant affair of fluttering wings, pumping tail, and an almost grateful swoop to a nearby perch.

Scientists call it "limited dispersal ability." Once a survival trait of the Florida Scrub-Jay, it is now one more element pushing the species toward extinction. As the genetics show, whole segments of the remaining scrub-jay population lie over the horizon, almost as if they don't exist to each other. But by helping to understand the bird's past, this new research offers directions and hope for future conservation efforts.

*The evolutionary history of the Florida Scrub-Jay starts on a pre-ice-age sand dune, sweeps into the present in a brush fire, and ends up squeezed between an orange grove and a subdivision.*

The evolutionary history of the Florida Scrub-Jay starts on a pre-ice-age sand dune, sweeps into the present in a brush fire, and ends up squeezed between an orange grove and a subdivision. Jays colonized Florida more than two million years ago, scientists believe. The Gulf of Mexico was lower then, allowing jays to arrive through arid landscapes from western North America, where the Western Scrub-Jay remains abundant to this day. As glaciers built up and subsequently receded, changing sea levels built sand dunes in parallel lines running down the spine of the peninsula.

Rainwater runs through this sand like water through a coffee filter, so despite Florida's abundant rainfall, the scrub became a place ruled by drought. When sea levels rose, the dunes became subtropical desert islands marooned by salt water. Thus began the isolation of the scrub habitat—and of the Florida Scrub-Jay. The resulting scrub community is a storehouse of evolutionary oddities, many of them in miniature. It supports some 40 endemic species of plants; dozens of insects, a skink, a lizard, and a mouse that occur nowhere else; a burrowing tortoise that provides homes for many of them; and a blue-black snake that reaches eight feet in length. Yet pristine scrub doesn't take your breath away as do, say, the dim spaces of a redwood forest or the endless grassy plains and alligator wallows of the Everglades.

It can seem like a jumbled mess that is either just past its prime or not quite there yet. Spindly oaks wave in the breeze, looking like anemic saplings from a brand-new cul-de-sac, except that these trees are hundreds, or perhaps thousands, of years old. Saw palmettos point vivid green fans at the sky, a waist-high scuffle of Stegosaurus backs. Every so often, the plants give way entirely and a bare patch of fine white "sugar sand" takes over.

At Archbold, scrub-jays prize those patches, using the deep, loose sand to bury acorns for winter. Fitzpatrick's research program here—started by the late Glen Woolfenden of the University of South Florida—is one of the most detailed, long-term studies of any wild bird.

"We know more about this population than you can know about most birds," Fitzpatrick says. "Take Blue Jays—they're everywhere, but they're incredibly hard to study. They nest thirty feet up in a tree, and they fly all over the place. It's a nightmare."

Florida Scrub-Jays, by comparison, are spectacularly easy to

MOLLY FITZPATRICK

study, he says. Nesting birds are so docile that workers occasionally lift a bird off the nest to check its contents—without provoking so much as a peck or squawk. And they are sedentary: most Florida Scrub-Jays spend their entire lives without ever leaving sight of the bush where they were born.

For almost 40 years, researchers at Archbold have conducted monthly counts of every bird on their main study area. They've found every nest, banded every nestling that survives to 11 days old, and tracked the movements and breeding success of every jay on their site. (The team also periodically searches for missing jays in pockets of scrub in the surrounding countryside.)

"We know a lot about whole lifetimes of jays," Fitzpatrick says. Some live 15 years, and the researchers can tally up their reproductive success each year and relate it to environmental conditions or the choices birds made about where to live. "We can measure how well they've done," he says, "and the currency we use is how many young they leave. That's the only long-term currency there is in nature."

Time and again, Fitzpatrick's records show Florida Scrub-Jay success lies in staying close to home: birds that live just one or two territories from where they were born produce more young than birds nesting just five territories away. And in the rare circumstances in which a young jay inherits its natal territory from a parent, those birds are the most successful of all. Fitzpatrick attributes it to a sort of home-court advantage: "They know the area; they know their neighbors. They know the best places to look for and to bury acorns." And the farther afield they venture, the more unfamiliar it is.

Scrub is such an uncommon habitat that jays pack themselves into every last corner they can find. There's not enough land to go around, so it's common for three or more jays—usually relatives—to share a single 20-acre territory (roughly the size of a Wal-Mart parking lot). But only two birds on each territory breed; the others just help out while they wait for a vacancy to open up on a nearby territory, practicing how the breeders do things. Chores include feeding nestlings, storing acorns, watching for predators while the rest of the group forages, and chasing away trespassing neighbors.

Despite all the help, the scrub-jay's life is filled with disappointments. Most eggs become snake food, according to Fitzpatrick, and two-thirds of fledglings never see their first birthday. Even one-year-olds have few prospects for making a life of their own—that's why many stay at home for a few years. Success in life hinges on becoming a breeding bird, but vacancies open up on only one of five territories per year, on average. Meanwhile, young jays have to stay alive. October and March are particularly bad, when thousands of hawks use the Florida skies as a migration highway.

But when it does come time to leave, scrub-jays rarely go far. Some 85 percent of them stay within about two miles of home, and even the females, which tend to travel farther from their natal territories than males, virtually never go farther than eight miles. The birds are dealing with the legacy of living on islands: most of the time it just doesn't pay to leave. But every once in a while, a jay heads over the horizon and hits the jackpot: an empty territory bursting with acorns and beautiful patches of white sand in which to bury them. Whenever this "Hail Mary" strategy works, it is because of fire.

Florida is the land of the afternoon thunderstorm. Under natural conditions, lightning-ignited fires would burn off the cluttered scrub every decade or two. The vegetation expects it: scrub oaks and saw palmettos have stout underground stems that hide their vital tissues in the cool ground. Fires may devour leaves and blacken every visible twig, but palmettos put out new leaves in a matter of days. Scrub-oaks ramp up acorn production in the years after a fire. It's as if the landscape shrugs its shoulders, stirring up the resident jays and reshuffling their territories. A few years later, those few jays that tried the Hail Mary strategy strike it rich. But nowadays most wildfires are quickly suppressed.

In 1990, Fitzpatrick and Woolfenden tried an experiment. They chose a patch of scrub that had been steadily losing jays for nearly a decade. In that time, scrub-oaks, sand pines, and palmettos had grown into dense thickets, providing hiding places for snakes and hawks, and tendrils crept over the bare sand where the jays used to bury their acorns. The researchers burned the patch to the ground, then monitored it over the next 18 years. Jays started to return almost overnight.

Another decade later, 20 jay families breed in scrub that had been virtually empty. And when Archbold fieldworkers tried to read the bands on the new jays' legs, they discovered that 80 percent were from parts unknown. They had arrived from far away, scoring empty, productive territories while nearby jays had stuck close to home and fought with their neighbors. The Hail Mary strategy had won out for a few hearty colonists.

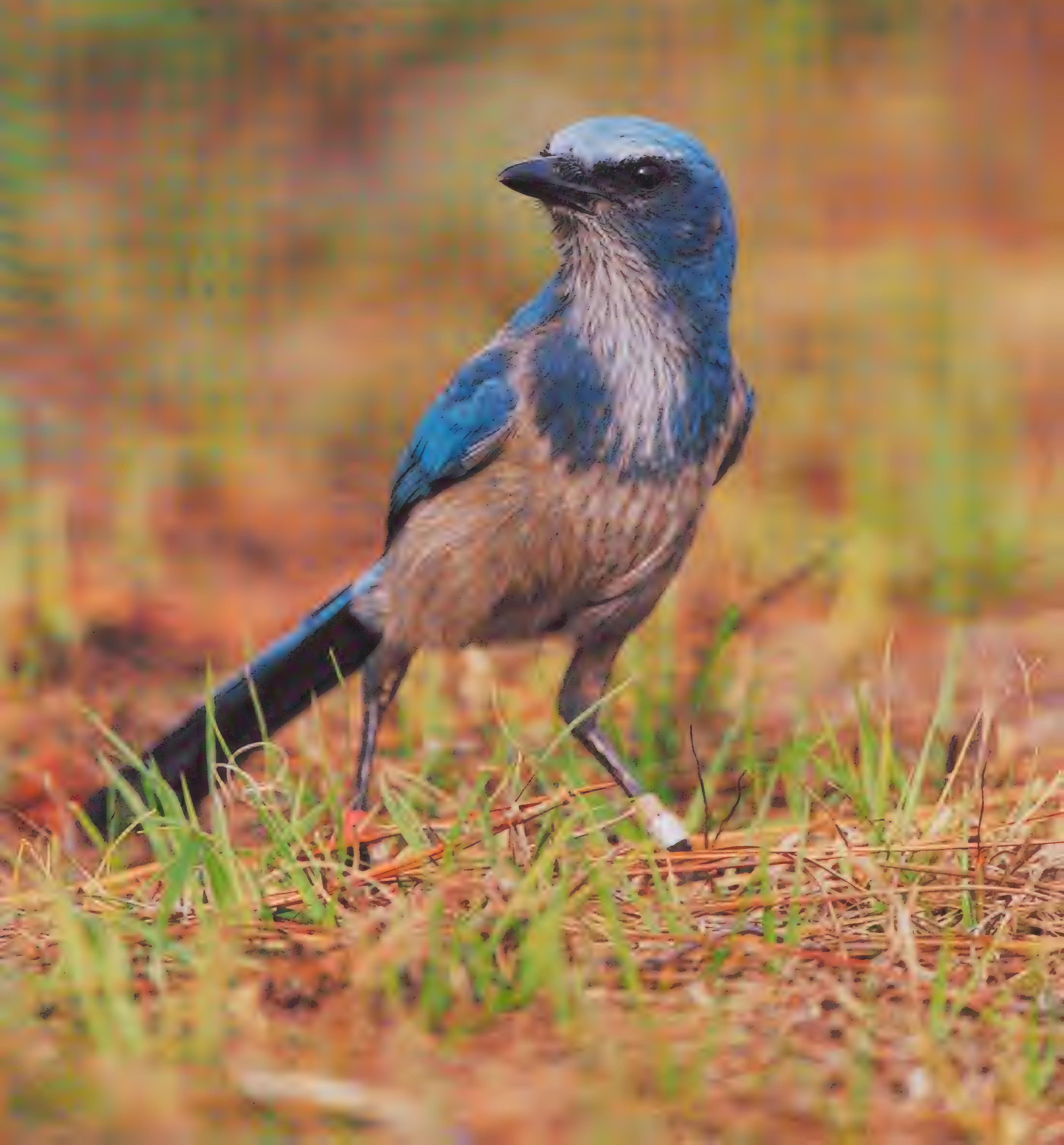
That fire experiment is a textbook example of the insights to be gained from long years of meticulous fieldwork. Still, it took Woolfenden and Fitzpatrick more than a decade to gather their first dozen or so records of scrub-jays moving farther than eight miles. Genetic analyses now offer glimpses of a population's past movements from just a few drops of blood. Coulon's work broadens the researchers' view from the 3,700-acre study site at Archbold to encompass the entire range of the species.

This genetic approach works because when a jay makes the jump to a new area, it carries its own unique assortment of gene varieties along with it. If the jay succeeds in breeding, those new varieties enter the local gene pool, which then becomes a bit more similar to the gene pool of the immigrant's home. The more sharing of immigrants, the more genes two populations will share, in much the same way that blue eyes are easier to find across Scandinavia than across southern Europe.

*Fire is a key habitat requirement for Florida Scrub-Jays. Recurring blazes keep the scrub open, leaving bare patches of sand where the birds bury acorns to eat during lean months. Fires also prune oaks and pines, making predators easier to spot.*

MARK J. BILAK

*The tendency to stay home is so strong that it has become a visible part of the bird. Florida Scrub-Jays have long, muscular legs and spend much of their time hopping through scrub or across the sandy ground.*



Coulon's research employed a detailed version of this approach. To begin with, a research team headed by Reed Bowman, Woolfenden's successor in the Archbold Bird Lab, collected blood samples from thousands of Florida Scrub-Jays across the state. Lovette's team at the Cornell Lab then sequenced 20 regions along each jay's DNA. With these data, Coulon used sophisticated computer programs to reconstruct which populations had historically traded immigrants.

To explain, Coulon sits in a conference room at the Lab of Ornithology and draws circles around jay populations on a map of Florida. The jay groups look like flecks of pepper scattered across the map, and the circles are a Venn diagram of scrub-jay dalliances: groups inside the circles tend to visit each other. Those outside don't.

Coulon's pencil indicates one broad grouping of five scrub-jay populations northeast of Tampa. The DNA evidence shows that jays have regularly moved among these groups even though they are up to 30 miles apart—four times farther away than 95 percent of jays ever go. Coulon thinks the finding represents the predevelopment era, when scrub filled the intervening spaces and jays could cover the distance gradually over several generations.

On the east coast, near Cape Canaveral, her pencil circles another curiosity: a clear line between two populations separated by only about a mile. She sees this as confirmation of the jays' intrinsic reluctance to move across unfamiliar habitat. The two populations lie across a narrow inlet of salt water. Elsewhere, Coulon says, other sharp delineations show jays are similarly unwilling to fly across rivers and marshes.

These results point to two lessons for conservationists, one practical and the other philosophical. The genetic links between populations on Coulon's map refine Fitzpatrick's field data on jay dispersal, and they suggest where scrub restoration would be effective. Saving scrub between jay groups within the same circle is a better bet than working on land outside a circle.

The second insight is a reminder not to write off any population entirely. In the past, some have suggested concentrating resources to save jays in only a few of their strongholds, such as Archbold Biological Station and surrounding areas, Merrit Island on the east coast, and the Ocala National Forest. Such a strategy assumes scrub-jay populations are like checkers: scattered across a game board but basically interchangeable. Coulon's work has shown that the populations are individually distinct. They're much more like chess pieces: lose one and you've lost a part of the game that you can't replace.

For Coulon, there's an irony in her projects on roe deer and scrub-jays. Her work in France focused on a common animal that was incredibly difficult to catch and to follow; her goal was to understand how to manage the species' growing population. In Florida, everything was reversed. In the field, she was bombarded by jays expecting handouts. Yet she was working with a species that is heading steadily toward extinction; her work was part of an urgent effort to ensure that scrub-jays continue to lend their azure flash to the dusty green scrub.

Perhaps the work will pay off. With all that's known about the species after so much study, it will probably come down to exerting the willpower to do what scientists know is required: resist turning what's left of the scrub into more subdivisions or citrus groves; periodically burn reserves to keep them productive; and attempt to re-establish scrub in selected areas to reconnect populations.

The balance of opinion may be shifting toward the scrub-jay. Sarasota County recently commissioned a study to determine how to keep jays from going extinct in the county, signaling a public appreciation of the species' plight. As Fitzpatrick says, it's no longer a fight to keep scrub as it always was.

"The pizza is gone," he says. "We're just trying to save the crumbs." And if we can't save crumbs that perch on our fingers, what can we save? ◆

CHRIS MAKAREWICH

*A scrub-jay takes a peanut from Coulon's hand. The species' tameness belies its desperate situation. Fewer than 10 percent of its original numbers remain, and populations are still declining.*

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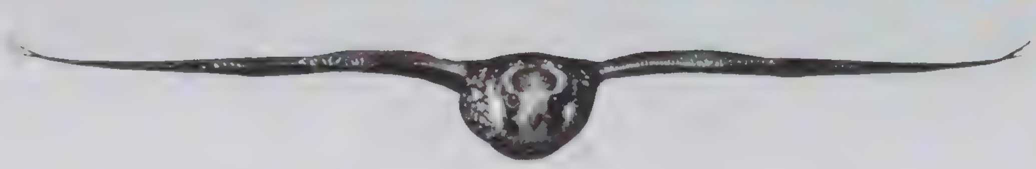

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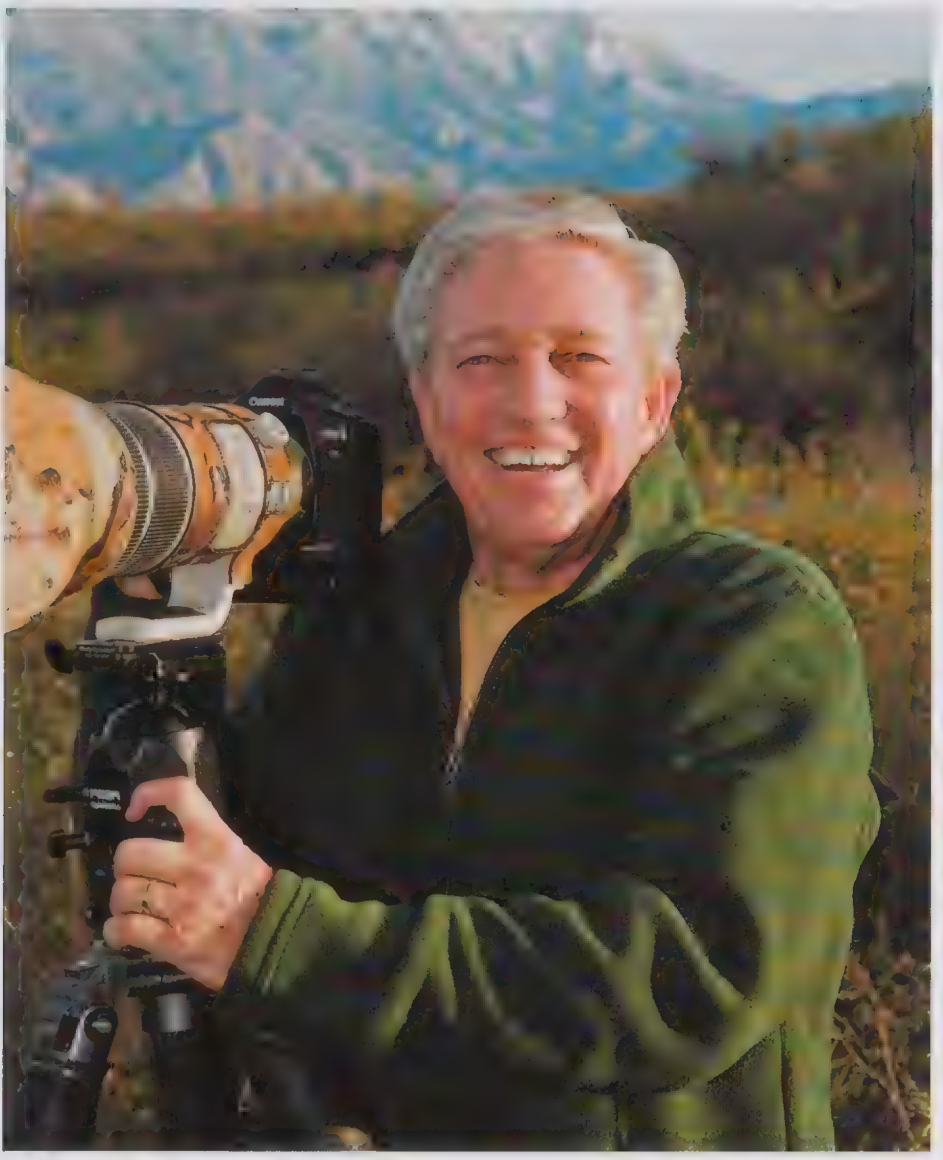
# REMEMBERING TOM VEZO

*by Marie Read*

*Celebrating the life and the artistry of one of America's most gifted bird photographers, who passed away this summer*



KARL REKUS

Last July, the bird photography community lost one of its most well-known and accomplished professional artists—Tom Vezo—who suffered a heart attack while hiking in the mountains near his home in Arizona.

I first met Tom in 1997 while we were photographing birds in south Texas. I was immediately struck by his warm friendliness and inspired by the passionate drive with which he pursued his work. But it was his sense of humor and the good-natured bantering we shared that I enjoyed most about him. We became fast friends. He shared many technical tips with me, an emerging photographer myself, and we eagerly discussed everything from new photographic gear to the state of the nature publishing industry. Every photographer whose life Tom touched—and there were many over the years—agrees that, while he was proud of his accomplishments, he also generously shared information and was eager to encourage others.

Tom grew up on Long Island, New York, and originally made his living in the printing industry, traveling to and from his New York City office. But inside this successful businessman, beneath his suit and tie, a passionate outdoorsman yearned to be set free. Sport fishing initially filled Tom's need to connect with the natural world but later he became involved with Long Island's birding community. In the early 1980s, his love of birds was quickly developing into a passion for photographing them. At that time he often shot with such veteran bird photographers as Arthur Morris and Kevin Karlson, stalking shorebirds at Long Island's Jamaica Bay and eagerly anticipating migrant songbird fallouts on Jones Beach. Along with other Long Island bird photographers, they shared images, critiqued each other's work, and fed on each other's excitement about their burgeoning craft.

By the early 1990s, Tom was becoming more and more dissatisfied with working in a city office, and he eventually sold his company to become a full-time wildlife photographer. Now free to travel to fulfill his creative desire for beautiful subjects, he crisscrossed North America from Texas, Alaska, and California to Maine and Newfoundland, and also traveled as far afield as the Galápagos Islands and Antarctica. The stunning images he created began gracing the pages of birding and nature magazines with increasing prominence, and his name soon became the buzzword in nature photography circles. He received an honorable mention in the prestigious BG Wildlife Photographer of the Year contest in 1997 and won awards in the *Nature's Best Photography* magazine's contest for "Wildlife" in the professional category in 1998 and 1999.

Tom was a deeply spiritual person. Beyond the excitement of getting a great shot, he felt a profound connection with his avian subjects, and he often spoke of the thrill of being out in nature experiencing birds' lives, sharing the energy that he sensed flowing through and between all living things. In his own words: "To create my bird photography, I've traveled many miles to the most wondrous places. I consider myself very lucky to have the opportunity to commune with nature as I do. It's not

*Hard work and a creative eye paid off for photographer Tom Vezo (above left) during his quest for images to illustrate his book* Birds of Prey of the American West. *At left, a Western Screech-Owl holds a banded gecko. Above, a displaying juvenile Harris's Hawk. These handsome raptors live socially, employing an array of ritualized postures to communicate with group members. Previous spread, two Bald Eagles weather a heavy snowstorm in Alaska.*

*Determination and quick reflexes netted Tom Vezo numerous action shots during his career. On the previous spread, three Common Terns join in a feeding frenzy for fish, creating a drama of wings, bills, and splashing water. Above, Vezo never shied away from composing birds small in the frame to include their habitat. A touching image of a tiny Piping Plover chick on a beach (above) not only shows this threatened species' environment but also provides a sense of scale for the viewer. At right, long photographic experience made Vezo a master of the decisive moment, as when a newly-hatched Pied-billed Grebe chick yawns while peering out from beneath its parent's feathers.*

only the birds that I treasure, it's also being out there enjoying all of what nature has to offer."

With his printing experience, Tom approached nature photography with a designer's eye. He strove to capture color and action in his photographs, but instead of always going for close-ups he often preferred to compose an image artistically, leaving the bird fairly small in the frame to include its habitat. His background in printing meant that he always appreciated fine quality photographic reproduction. One can get a sense of his artistry in his books, the first of which was *Wings in the Wild* (Stackpole Books, 2001), written by Paul Kerlinger. Next came *Birds of Prey in the American West* (Rio Nuevo Publishers, 2003), written by Rich Glinski, which won an award for its design. Tom worked long and hard on this project, tracking down elusive subjects and spending countless grueling hours in hot photography blinds. Tom's most recent book, *Wings of Spring* (Stackpole Books, 2006), written by *Birder's World* editor Chuck Hagner, won first place for "Photographic Design and Artistic Merit" from the National Outdoor Book Awards.

By the late 1990s, Long Island no longer satisfied Tom's photographic needs, so he decided to move to Arizona to be closer to the western locations he loved to photograph. After marrying, he and his wife Dorothy built a beautiful home, landscaped expressly for bird photography. Surrounded by dramatic desert scenery and with a whole new suite of avian subjects to discover, Tom let his creative spirit soar with renewed enthusiasm. In addition to his signature bird images, he began producing spectacular landscape photographs. One of my favorites is a photograph he took of the Santa Rita Mountains under the brooding clouds of Arizona's monsoon season, a flash of lightning punctuating the late afternoon sky. Yet birds were never far from his heart and his lens, even in his western landscapes—in an image of Mt. Moran emerging from the mist in Grand Teton National Park, Wyoming, a flock of Canada Geese takes flight, almost as an afterthought, from the Snake River below.

Always an advocate for environmental protection, Tom became directly involved in recent conservation efforts in his adopted home state of Arizona, in particular in protecting Madera Canyon, a unique habitat nestled in the Santa Rita Mountains and home to such Southwestern specialties as Elegant Trogon and Elf Owl. When the canyon faced threats in 2007 from proposed housing developments and mining interests, he organized a fund-raising event with landscape photographer Jack Dykinga and birding author Kenn Kaufman, moving audiences with his spectacular photography.

Tom inspired many people with his exquisite images, but he never hesitated to appreciate the work of others too. I know I'm going to miss sharing the excitement of bird photography with him. I'm consoled, though, by knowing that when nature presents me with a great bird photo opportunity in the future, in my imagination I'll see Tom's sparkling smile and hear his distinctive Long Island drawl, "You're gonna be faaaaa-mous!"

Tom, you were taken from this earth far too soon, but your spirit will live on forever through your magnificent bird photographs. *Living Bird* is honored to present a selection of our favorites. ◆

*Marie Read is a bird photographer, book author, and magazine writer based in Freeville, New York. Her work is featured regularly in this magazine. Visit her web site at marieread.com.*

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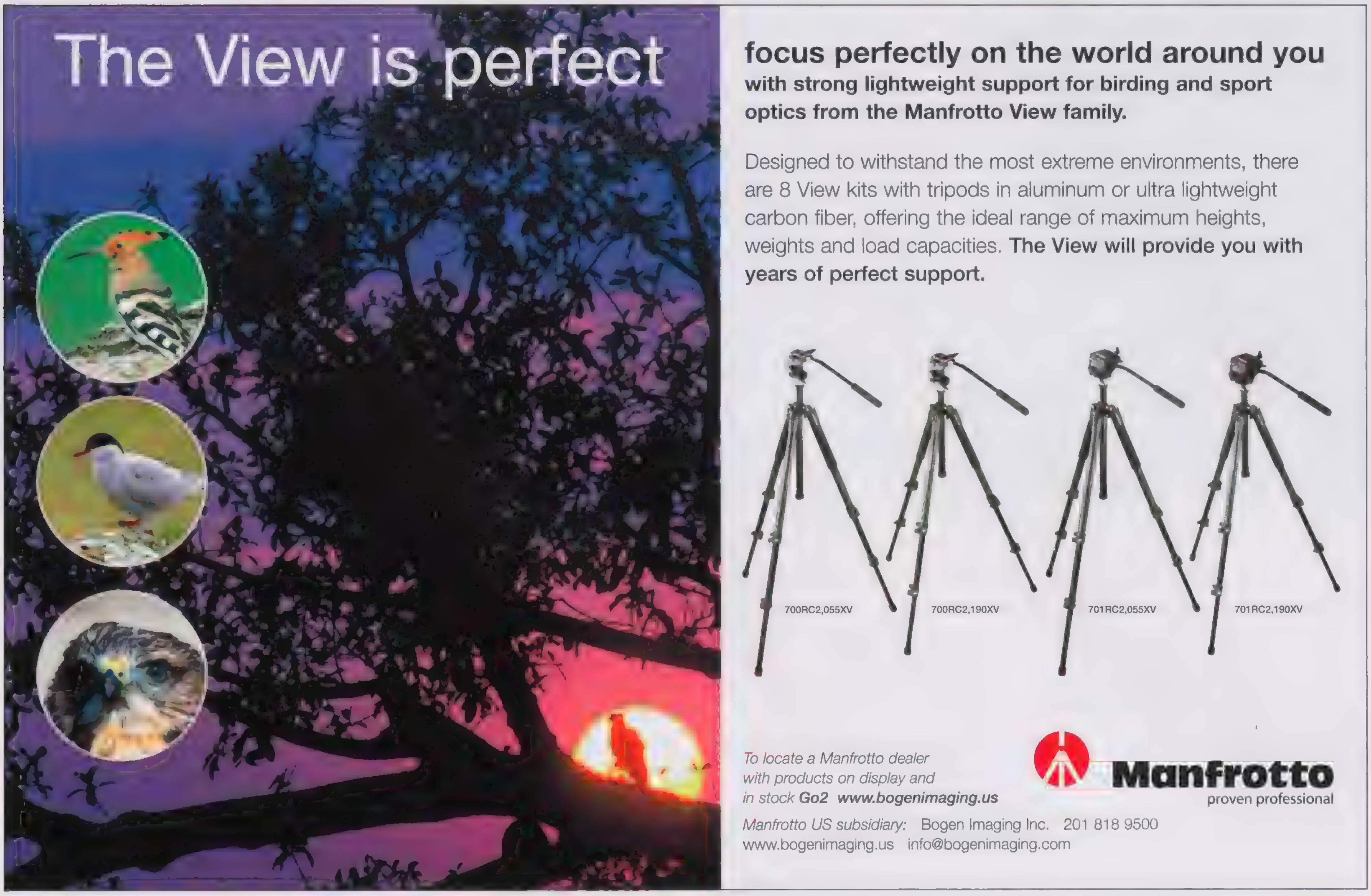

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*In the Field*

# The Accidental Phenologists

*by Jack Connor*

## *All birders become students of the seasons, without even trying*

Dividing the year into four seasons is a tradition common around the world, at least outside the tropics, but most of us recognize that it's an inaccurate system.

A few observers think four is too high a number. Some central Californians say they experience only two seasons a year: fall and spring. In the Florida Keys locals like to ask, "Who wouldn't want to live here? It's summer all year round!" Chicagoans have been heard to complain that their city has only two oppressively long seasons—winter and summer—and two other seasons too short to deserve the name. "We had a good spring this year," my brother once claimed when he lived there. "It fell on a weekend."

Fishermen wish we had only one season: "Life begins," say their bumper stickers, "when fishing season starts."

Most of the rest of us find four too small a number and divide the year more finely. Anyone who lives north of the Gulf States and the southwestern deserts recognizes that "early winter" has a different feel—bright, clean, invigorating—than the dishwater-gray, when-will-it-finally-end? of "late winter." Depending on how much farther north you live, you may be able to close your eyes, think of the first week of February, and remember how "midwinter" can also be separated from its bookends. Those of us who live east of California and south of Canada can divide summer in three as well.

Naturalist Joseph Wood Krutch tripled the traditional quartet of seasons in his 1949 collection of essays, *The Twelve Seasons.* Every month strikes a distinctive chord, Krutch notes: "To me July and August, January, and February, have been [different] epochs, each with a character of its own . . ." Residents in New England, where he lived, should think of the year beginning in April, when the spring peepers call, he argued. August is exemplified by crickets; September by woolly bear caterpillars; November by squirrels preparing their winter hideaways. The New England year ends in March, by his reckoning, when the last pond ice thaws—the signal to listen again for the first peepers.

Some old Chinese calendars divide the year into 24 seasons, each about two weeks long. These periods are named not for ancient gods, Latin numbers, or former emperors, as our months are, but instead for terms that evoke the seasonal changes directly, including "White Dew," "Little Snow," "Big Snow," "Clear and Bright," "Grain Rains," and "Excited Insects."

Are you old enough to have learned in college that the Inuit language has 30 words for snow? Inuits—it was said—experience more sleet and frost than the rest of humanity, pay more careful attention to what's blowing in the wind, and so have more words to describe different forms of frozen water than other cultures. Not too long ago, this particular aspect of the Inuits' vocabulary was used to illustrate what linguists and anthropologists call the Sapir/Whorf hypothesis—the idea that language creates reality as much as reflects it. An Inuit notices more varieties of snow than speakers of other languages, the argument went, not only because he has more snow around him but also because he has more words to name its

*Spring, summer, autumn, and winter just don't adequately sum up all the seasons of the year. How about creating a name for the time of year when Mourning Doves begin courting?*

CLIFF BEITTEL

different forms. The 30 words create 30 separate realities.

A Google search reveals that the Inuits' 30 words for snow are now dismissed as an "urban myth." The several peoples once called Eskimos speak different languages, not a common one, and have no more words for snow than other temperate zone cultures, it turns out.

But the Sapir/Whorf hypothesis still survives. My college anthropology professor may have suspected the truth about Inuits and their vocabulary because he breezed by it when teaching us the concept. He focused instead on the English words for colors. "Think of cerulean," he said. "We all know what that word means." We all nodded, pretending we did. "We think of it as a color all its own, but cerulean can be separated from the other blues on the spectrum only because the English language gives us a word for it."

I was not a birder then, but I have thought of him and that lesson in the years since each of the too-few times a Cerulean Warbler has landed within sight. What would we call that beautiful animal if we lacked the word cerulean?

Birders' heightened sense of colors seems to support the Sapir/Whorf hypothesis, no? Who else but a birder can separate prothonotary from other forms of yellow? We recognize that shade only because we know the bird and its name. And how about vermilion, buff, roseate, and plumbeous? It's unlikely that your bookshelf dictionary even has an entry for plumbeous, but birders who have chased the Plumbeous Vireo in the Southwest or the Plumbeous Kite in Central America know its definition.

So, birding enhances our perception of colors. But we are even better with the seasons. All birders become phenologists—students of the seasons—without even trying.

Here's a list of seven widespread bird behaviors in scrambled chronology. Can you arrange them in the order they occur each year in your area?

a) The first fledgling robins hopping here and there in your backyard, out of the nest but still begging from their parents.

b) Male Mourning Doves cooing and pursuing females, while the females, not yet ready to be seduced, hustle away.

c) Tree Swallows gathering by the dozens in "premigration" flocks on telephone lines—a mix of ragged adults, molting their wing feathers, and fresh-plumaged young of the year.

d) The first northbound Osprey.

e) The southbound return of the Dark-eyed Junco from its nesting grounds in the north to its wintering grounds near you.

f) Male and female Great Horned Owls hooting back and forth—"dueting"—in courtship.

g) The return of your favorite local-nesting warbler (you choose the species) from its wintering grounds to the south.

See the answers at the end of this article, and if you get them all right, as I believe most *Living Bird* readers will, the point is made: birders make good phenologists. Here's a tougher task, though. Can you name the date (plus or minus seven days)

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when each of those events is most likely to occur in your particular locale? The right answers here will differ, depending mostly on latitude, but if you can assign those dates correctly—or come close—you are ready for the "How many seasons can you find next year?" challenge. In fact, you are ready for the challenge even if you can't name those dates yet, but simply would like to be able to do it.

Step 1) Find a big 2009 calendar with lots of space for notes and cross-outs.

Step 2) Divide each month into thirds (1st–10th, 11th–20th); for the most eventful months—April, May, September, and October for the majority of us—you might even consider fourths.

Step 3) Promise yourself that you will keep a focus in the upcoming year on the "ordinary" birding events, which are, of course, the thematic events of each period.

Step 4) Write them down!

Step 5) Look back as each period ends and find the most telltale birding event you have noted. What best illustrates the "season" you have just watched unfold?

A warning: this is a more difficult challenge than it may seem. I know because I have tried and failed at it for several years running. (And maybe this is a challenge that can only be met piece-by-piece over several years of observation.) One problem is the temptation to write down the oddballs—the late shorebird, the hard-to-find sparrow, the huge flock of blackbirds—and take for granted the birds that behave as they should when they should. The overlapping problem is that you will discover you probably do not know the latter events as well as you thought you did—and so can't be so sure what's unusual and what isn't. "Look at that: two robins building their nest already. That's early, isn't it? Hmmm, when do the first robins build their nests around here?"

One other problem is that we lack a vocabulary for periods shorter than our months, which forces us to use phrases like "early spring" or "mid-March" when we talk about the timing of bird behaviors. These terms no more evoke the return of the Osprey than "light blue" describes cerulean. Why not invent your own names? "Osprey Back" and "Robin Nest" seem as appropriate on a birder's calendar as "Grain Rains" and "Excited Insects" are on the old Chinese calendar. And naming them helps make them real.

How many distinct periods can you identify: Twenty-four? Thirty-six? Fifty-two? Whatever your count totals at the end of the year, you will have stepped forward to a better understanding of birds, and it's the kind of understanding we should all aim for if we want to call ourselves real naturalists. Anyone with a field guide, a pair of binoculars, and a modicum of experience can stumble on a late shorebird, a hard-to-find sparrow, or some other rarity. But only the best and most observant birders can chart and name all the seasons of the year. Go for it! ◆

*Answers for most parts of the country: b) late winter; d) early spring; g) mid-spring; a) late spring/early summer; c) midsummer; e) mid-autumn; f) late autumn, early winter?*

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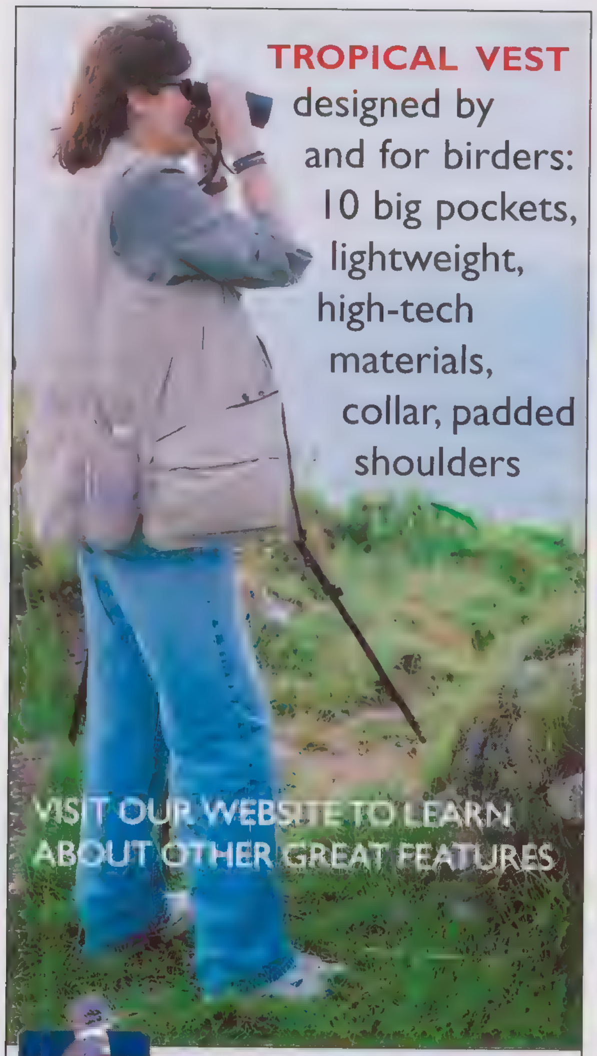

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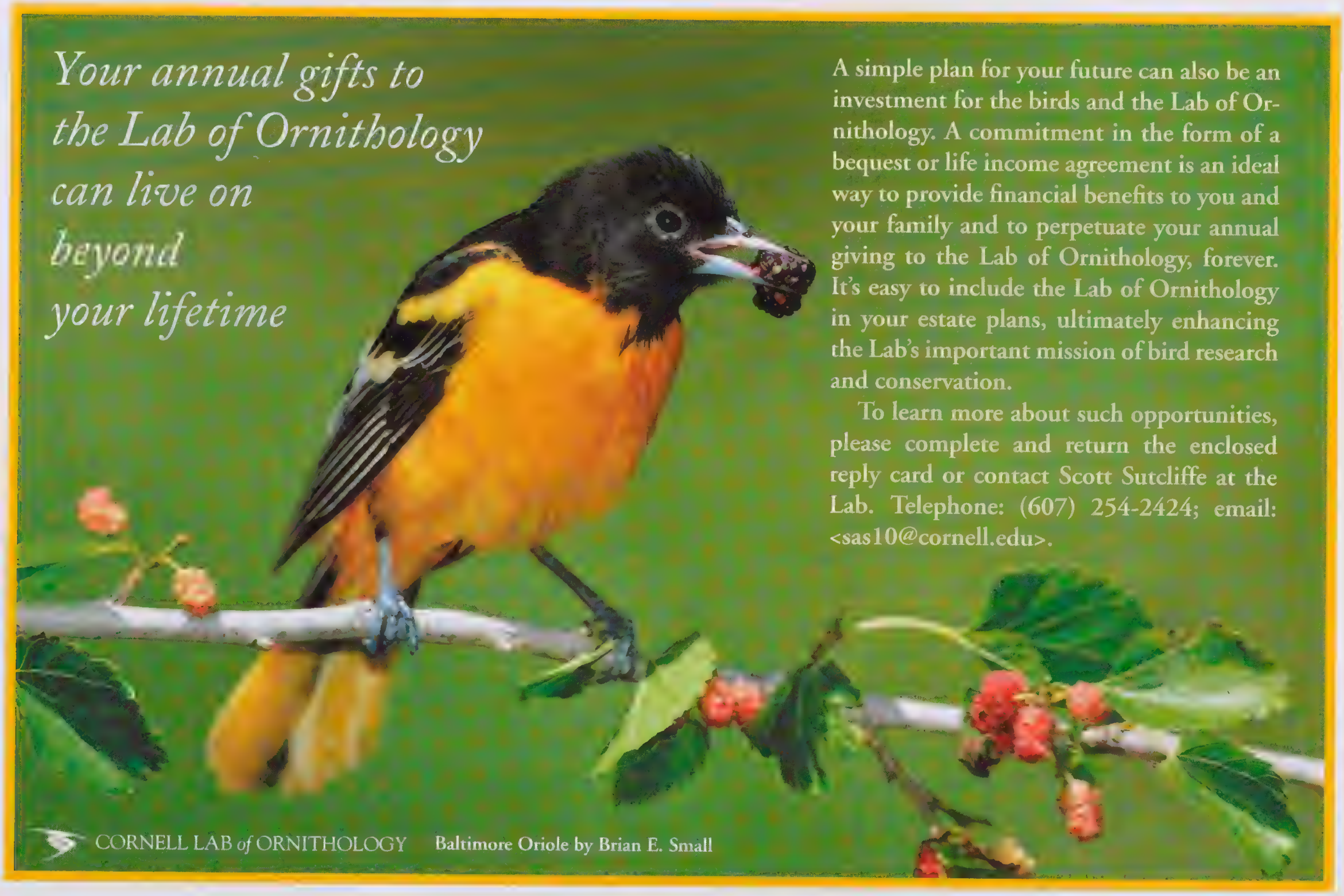

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Baltimore Oriole by Brian E. Small

# Opposable Chums

*A documentary film by Jason Kessler*

The documentary film *Opposable Chums: Guts & Glory at the World Series of Birding* explores this annual spring birding blowout in New Jersey, which has raised millions of dollars for conservation since it began a quarter of a century ago.

Filmmaker Jason Kessler spent seven years crafting this self-funded movie, relying on paying video jobs from big-name fashion designers to keep food on the table. *Opposable Chums* has been well-received at film-festival screenings and is now available on DVD via Kessler's web site (www.opposablechums.com), where you can also watch trailers for the film.

Like snowflakes, it seems, no two birders are alike. Part of the film's gentle humor comes from the conflicting ways that competitors view their avocation—variously described as a hobby, obsession, passion, sport, or profession. But everyone agrees that the World Series of Birding amounts to "insane, intense birding" as teams check off as many birds as possible by sight or sound in a midnight-to-midnight marathon across the entire state. Supporters pledge a set amount for each species tallied.

You'll see some familiar faces in the film. The Cornell Lab of Ornithology's 2001 Team Sapsucker, sponsored by Swarovski Optik, is featured with then-team-members John Fitzpatrick, Kevin McGowan, Steve Kelling, Ken Rosenberg, and Jeff Wells seeking redemption after landing in second place four years in a row. From midnight darkness in the Great Swamp, through Dunkin' Donuts pit stops, bouts of food poisoning, and tick attacks, all the teams are on high alert for this mental and physical challenge. The film also traces the growth of the event from its humble beginnings—when the possibility of identifying 200 species in a single day seemed absurdly out of reach—to the present, when top teams sometimes tally more than 220 species.

Opposable Chums
Guts & Glory at the World Series of Birding
with David Sibley, Pete Dunne, & Kenn Kaufman
" the best film I've ever seen about birding "
PETE DUNNE

I won't ruin the ending of the movie by telling you which team takes top honors, but thanks to all of the contributions the event raises for conservation, the birds are always winners. As Lab director John Fitzpatrick points out, the World Series of Birding is all about the thrill of the hunt and a sense of renewal as the birds of spring return. *Opposable Chums* captures all of the chaos and camaraderie of the event—and takes viewers along for the wild ride. Price: $24.95 —*Pat Leonard*

# The Backyard Birdsong Guide

*by Donald Kroodsma*

Learning to recognize the voices of backyard birds is as easy as pushing a button, thanks to two new books that can literally carry a tune. *The Backyard Birdsong* guides showcase common birds of eastern and western North America using built-in players loaded with birdsong recordings from the Cornell Lab of Ornithology's Macaulay Library. Both guides include sounds for 75 species accompanied by scientifically accurate illustrations and range maps. The books are written by Donald Kroodsma, a visiting fellow at the Lab who has nursed a smoldering passion for birdsong for more than four decades.

BACKYARD BIRDSONG
068
BACKYARD BIRDSONG
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"Once people start pushing buttons, they can't stop!" Kroodsma says of the *Backyard Birdsong* books. "A CD is wonderful and has great quality, but it doesn't have the convenience of being able to push a button right now and hear the bird. The technicians worked so hard on taking these songs—supplied by the Macaulay Library—and getting them just right, fitting them into the little electronic modules with a limited memory and then programming them so that they sounded like a real bird singing—a marvelous feat."

Learning to recognize bird songs is a skill like any other, Kroodsma says—a skill that requires practice. "I described this in the introduction to the *Backyard Birdsong* books," he says. "When I hear birds singing I see their songs dancing across the sky in these frequency-time graphs called sonograms—like musical scores for bird song."

*The Backyard Birdsong* guides follow the success of their bigger brothers, *Bird Songs from Around the World* and *Bird Songs: 250 North American Birds in Song*, both written by Les Beletsky. They also feature built-in players and recordings from the Macaulay Library. So what's the big deal about birdsong?

"These songs are really a window on the minds of these birds," says Kroodsma. "Every time a bird opens its bill and says something it's a window on—I say it loosely—what it's thinking." Price: $24.95 each.

—*Pat Leonard*

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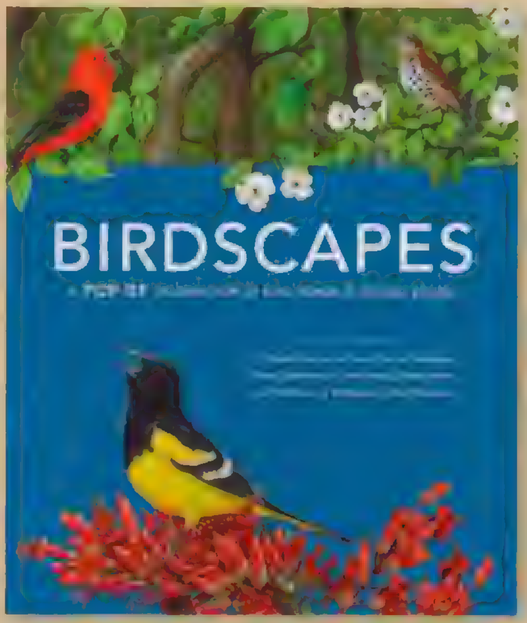

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## A Supremely Bad Idea: Three Mad Birders and Their Quest To See It All

*by Luke Dempsey*
*(Bloomsbury USA)*

Reviewed by Stephen J. Bodio

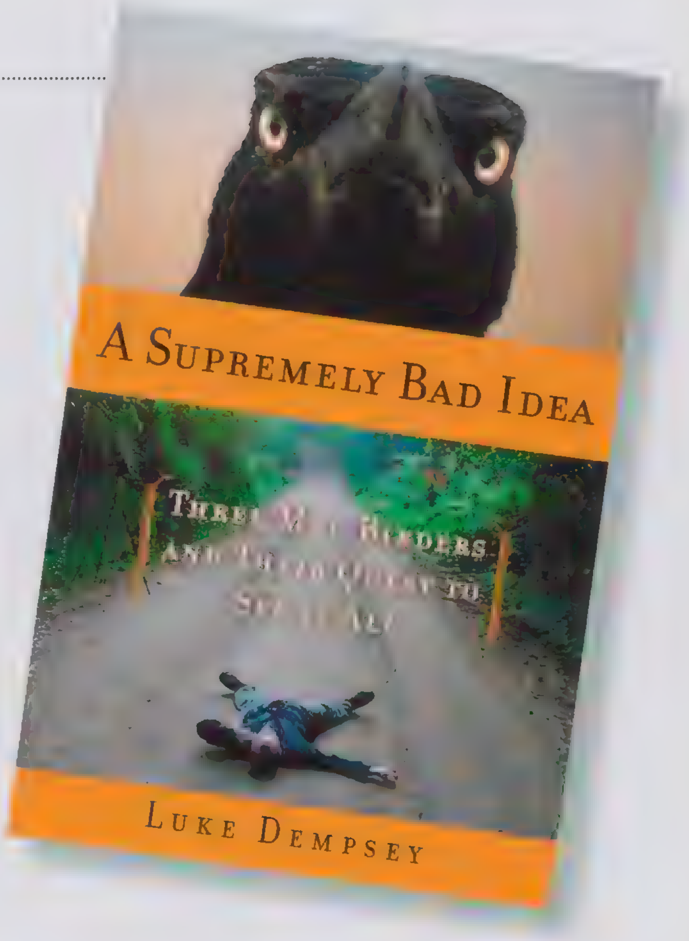
This book is an odd mix. Dempsey, an English-born editor from New York City, narrates a light-hearted account of his and two friends' rather random expeditions to the hotspots of U.S. birding—Arizona, Florida, Michigan (for the Kirtland's Warbler), the Pacific Northwest, Texas for migrants—and their adventures and commentary en route. The whole things adds up to an exasperating mixture of too-cute observations and not occasional condescension toward the inhabitants of "flyover country," combined with a genuine wonder at birds and some passages that could almost convert non-birders to the pastime.

To get the embarrassing parts out of the way first: Dempsey and his friends seem to dislike ordinary non-urban Americans, seeing them as rubes and rednecks again and again. Seeing a bunch of soldiers at Fort Huachuca, Arizona, his companion Don says "Good for you boys, learning how to kill. Very nice. Lovely way to spend a morning." Don later observes in Texas, generalizing about its residents, that "these people are backwoods." When four law enforcement officials check them out (in an utterly friendly manner) because they are watching a federal prison with binoculars, Dempsey thinks: "So we're probably not going to be robbed, but still could be beaten to death." (The officials just say, "Have a good day.") I wouldn't mention this if it were not so pervasive.

When he gets to birds, though, his whole persona changes; wonder replaces snide comments. He is no mere lister: "We'd much rather waste an hour enjoying a particularly beautiful bird than simply 'getting' it and moving on. Some hard-core listers, on the other hand, go after birds in the way train spotters list engine numbers. The number such birders 'acquire' can reach astronomical heights, but one wonders if they're in love with the birds or just the list."

His informal style allows for original digressions, like this one on nature shows. "Why, when humans put together a visual montage with wild nature as the theme, do we reflexively back it with spooky-based music, as though all animals are from Pluto? We don't fully understand nature, I get it, but the more we make them sound like a visitation from a distant planet, the more, surely, humans will view nature not as an organic part of the planet's existence, but as something to fear, and thereby pay scant respect to."

But finally, it is wonder that redeems *A Supremely Bad Idea* and makes it worth reading. When Dempsey drops his wisecracking persona he can come up with passages like this: "Nature had no moral imperative: nothing helped the bird; there was no fellow love for it out there; the water didn't help it, save harboring its food source; the other birds wouldn't mourn its passing; the weather was just the weather. A man stood on the beach, watched it pass, and spoke out loud its name, in wonder and intense joy."



## Return to Warden's Grove: Science, Desire, and the Lives of Sparrows

*by Christopher Norment*
*(University of Iowa Press)*

Christopher Norment's *Return to Warden's Grove* is something very different: a working biologist's musings on science and art, life and death, silence and solitude, and "right practice," all seen through the lens of the three years the author spent studying Harris's Sparrows from a derelict cabin on the Canadian tundra. While trapping, banding, collecting, and enumerating, he was on a quest that might be summarized by this passage: "Why should I have had the hubris to believe that I could enter into a dialog with Harris's Sparrows, and understand anything about the working of their minds? I desired to travel into the deepest unmapped country, but I had no way of seeing the terrain."

The physical terrain of his study is daunting: to get there, he flies over more than 300 uninhabited miles of tundra northeast of Yellowknife, itself a remote location. Once there, the two scientists are on their own in a region of hungry grizzlies, watchful wolves, and such numbers of mosquitoes that even reading about them can make you uncomfortable. (Of the bears, he says: "It struck me that I was behaving like a foraging Harris's Sparrow—for the most part focused on the task before me, but always vigilant and looking up every minute or so to scan for predators. It never was possible for me to forget my status in the world; as the Northern Shrikes were famous to the sparrows, the bears were famous to me.") But he finds inspiration and even the Buddhist notion of right practice in simplicity, solitude, and silence.

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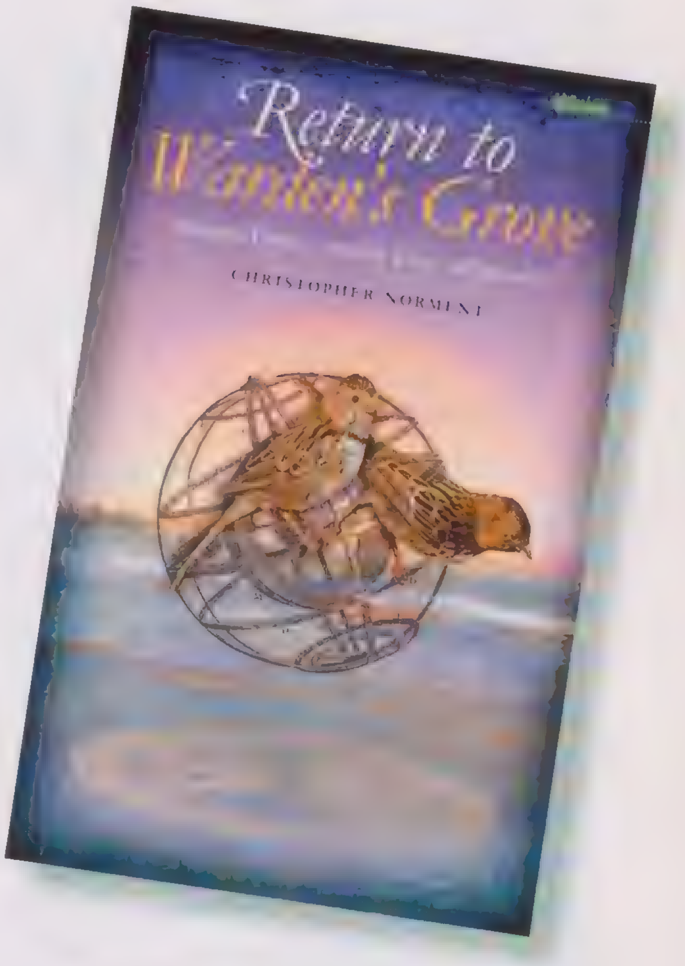
His work itself is conducive to such things; unlike the so-called "sexy" branches of biology such as molecular genetics, which mostly take place in shiny labs with expensive equipment, Norment's science consists of watching, waiting, and taking notes. He muses that he might be "nothing more than a scientific minimalist, the Philip Glass of *Zonotrichia*, with my main tools being nothing more than a pair of binoculars and a ruler."

Norment stands up for the value of such science, and for the idea that science is not inferior to the arts, or rather can be appreciated as an art of sorts itself. He dismisses the idea that poetry stands above science, saying carefully that "science might be of equal value to art in describing our relation to the natural world." He defends taxonomy in particular against the accusations of novelist John Fowles and poet W. S. Merwin, that it separates us from nature by naming: "There need not be any Faustian bargain in the practice of naming and describing life: this much knowledge for this much alienation. Instead, I'd argue that nomenclature can bring us closer to a full appreciation of the natural world. Names are not the things themselves, but they carry with them the possibility of understanding or even wonder." He lightly touches on the poetry of the Linnean binomials for several species of birds: Snow Goose (*Chen hyperborea*): "goose from beyond the northwind"; Northern Shrike (*Lanius excubitor*): "sentinel butcher"; Long-tailed Duck (*Clangula hymenalis*): "noisy bird of winter."

He makes the argument that language, poetry, and science all flow from our senses. He quotes Wallace Stevens "the ear is an eye" and continues: "the tongue, the skin, and the nose are 'eyes' too, and there is no reason why extensions of these organs—binoculars, rulers, microscopes, spectrophotometers—cannot help us to see more effectively and (yes!) passionately, and tell a more complex and profound story about the world."



Solitude and silence are also important to him. He finds a refuge from civilization's ambient noise in the remote tundra. "I desire time, distance, space—the very things our culture seeks to obliterate—we are quiet only when we sleep, and even then we are often bathed in noise . . . as the students text message and chatter away, the Northern Cardinal singing in a nearby maple disappears, as do the tiny violets flowering along the edge of the campus path." Do such students see, hear, or name anything? Do they have the time?

Near the end of his journal he brings science, nature, observation, and intuition together: "There is wisdom in data, emotion in nuances, stillness at the center of a Long-tailed Duck's call, hope and tenacity in the lives of birds, joy in the presence of spiders, if only we see properly. In these visions, complex and sometimes contradictory, lies an understanding that roots us more firmly and complexly in our world." Or, more succinctly, as he quotes astronomer Chet Rayno, "Description is relevance. Seeing is praise."

Maybe Christopher Norment has more in common with Luke Dempsey than either could expect. ◆

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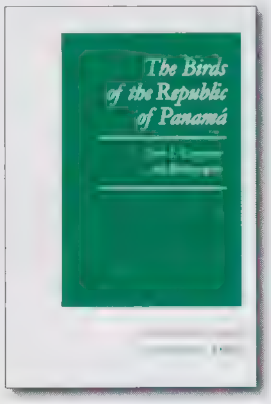

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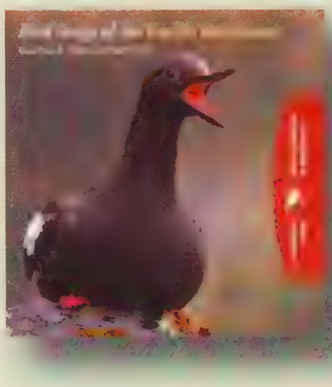

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BOBBY HARRISON (2)

# Wakodahatchee Wetlands, Florida

During the past decade, Wakodahatchee Wetlands in Delray Beach has emerged as one of South Florida's hottest birding locales. Wakodahatchee—a Seminole word meaning "Created Waters"—lies in the heart of a vast mega-metropolis reaching from Palm Beach to Fort Lauderdale. But this 56-acre wetland, with its open ponds, emergent marshes, and forested wetlands, provides an oasis from urban sprawl for more than 150 bird species, including wading birds, waterfowl, rails, bitterns, and passerines.

Although Wakodahatchee is a good place to watch birds year round, the best time to visit is from mid-January to April, when birds are most active and are in their beautiful breeding plumage. This is also prime time for bird photography. A long boardwalk provides access to the heart of the wetland, where nesting herons, egrets, and Anhingas are within easy camera range. Wakodahatchee is also one of the best places to observe and photograph secretive birds such as the Sora, at right, and bitterns as they feed along the reedy edges of the open ponds.

—*Bobby Harrison*

**DIRECTIONS:** Wakodahatchee is located in Delray Beach, Florida. From Interstate 95 exit onto Atlantic Avenue West, continue west 3.7 miles to Jog Road, turn right, and continue north on Jog Road for 1.7 miles. Then turn right into the Wakodahatchee Wetland parking lot.

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*The Catbird Seat*

# They Burn Birders, Don't They?

*by Pete Dunne*

*Illustration by Jeff Sipple*

Remember when birders used to be loved? We were the kindly neighbors who local kids would bring baby robins to by the fistful. The first responders when starlings flew down chimneys and wrens took up residency in the air filters of parked RVs. Our telephone numbers were written on the sides of wall phones. At work, people would wait for us at the water cooler to describe this "really cool bird they saw," and bosses would knock at the cubicle (not just barge in) and ask what kind of feeder and seed they should buy for parents who had just entered a small retirement community.

"Do you think they'll get more birds if they use macadamia nuts or something expensive like that?"

"No. Black oil sunflower seed works fine."

We had nicknames like "The Bird Lady" or "Ol' Birder Bob."

We had respect, standing.

But that's all changed, now. In a few short years, birders have gone from being oracles to pariahs.

I remember how it started. It was the day I walked into my brother's house, anticipating Uncle-Peter-directed hugs. Instead my sister-in-law almost threw herself between me and my niece.

"Hove youh beehn neeah 'ny bihrds?" my sister-in-law said through the double-ply dishtowel she had plastered over her face.

"Define near," I said.

"Close enough to be infected?"

"Infected with what?"

"The virus," she said. "The virus that's killing all the crows. Birds transmit it."

Actually, West Nile virus is transmitted by mosquitoes. Birds are just the unhappy hosts. I tried to explain this. And the fact that despite tabloid-fueled concern, far fewer people were being made seriously ill by West Nile Virus than were being injured on playground swings—but to no avail.

I never did get a hug from my niece that day.

Then came "Bird Flu." My first inkling that this was going to put me in arrears with society came when Linda and I tried to cross back into the United States from Canada. The border official who asked to examine the interior of our RV stopped at the door and jumped back like she'd been shocked by an electric cattle prod.

"DO YOU HAVE BIRDS IN HERE?" she demanded.

"No," we said, perplexed. "Why?"

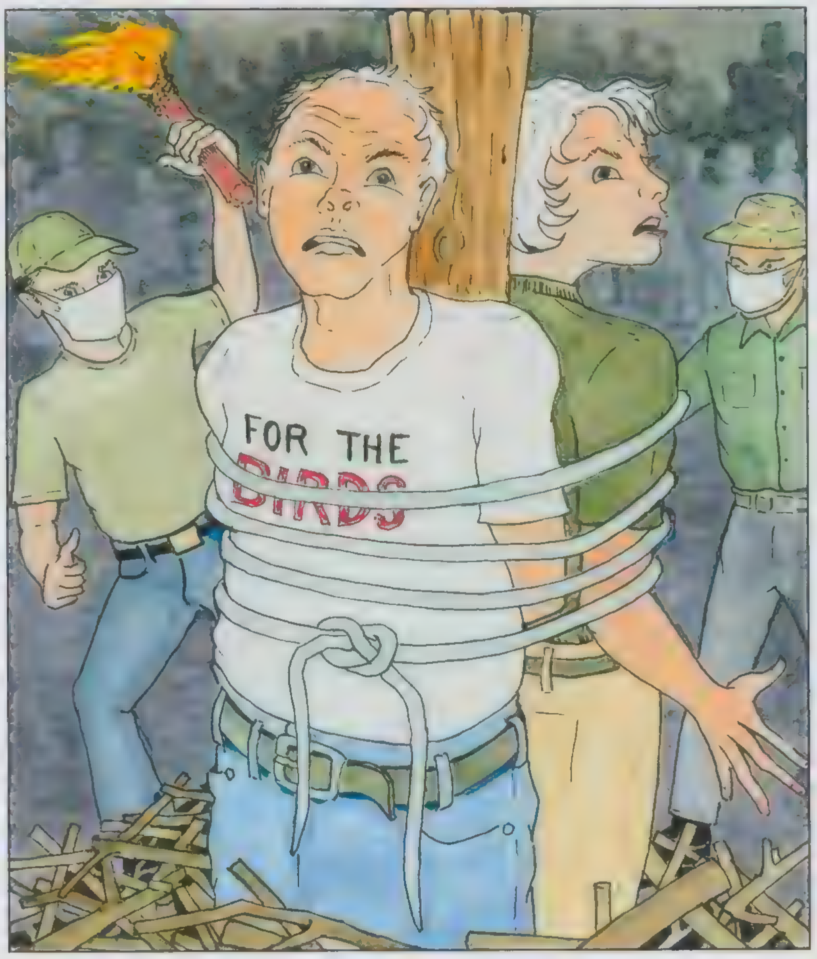
She pointed to the bag of millet on the steps. It was all we could do to convince her that Linda used the stuff to attract subjects for photography and that there was no reason to call a hazmat team or to put us in quarantine.

It's only gotten worse. I've received letters from people who demand that we "do something about the Bird Flu threat." At water coolers colleagues stop talking when birders approach, then caucus in whispers when we retreat.

"We're birders," I try to explain, "not lepers, not infectious-disease carriers." But people remain suspicious, hostile. We're involved with birds. This makes us accomplices.

It hasn't gotten so bad yet that people make the sign of the cross to avert the evil eye or burn incense to purify the room when I leave. Still, I'm nervous. Is being an accomplice just the first step on the short road to culpability?

I mean, people used to go to their friendly, neighborhood witches to cure warts and buy love potions, and then came the Black Death. Next thing you know, broom-riding apothecaries were being burned at the stake.



No. This is paranoia. It could never happen in this day and age. These are the people I used to soothe when baby robins were breaking their hearts. This is the age of science.

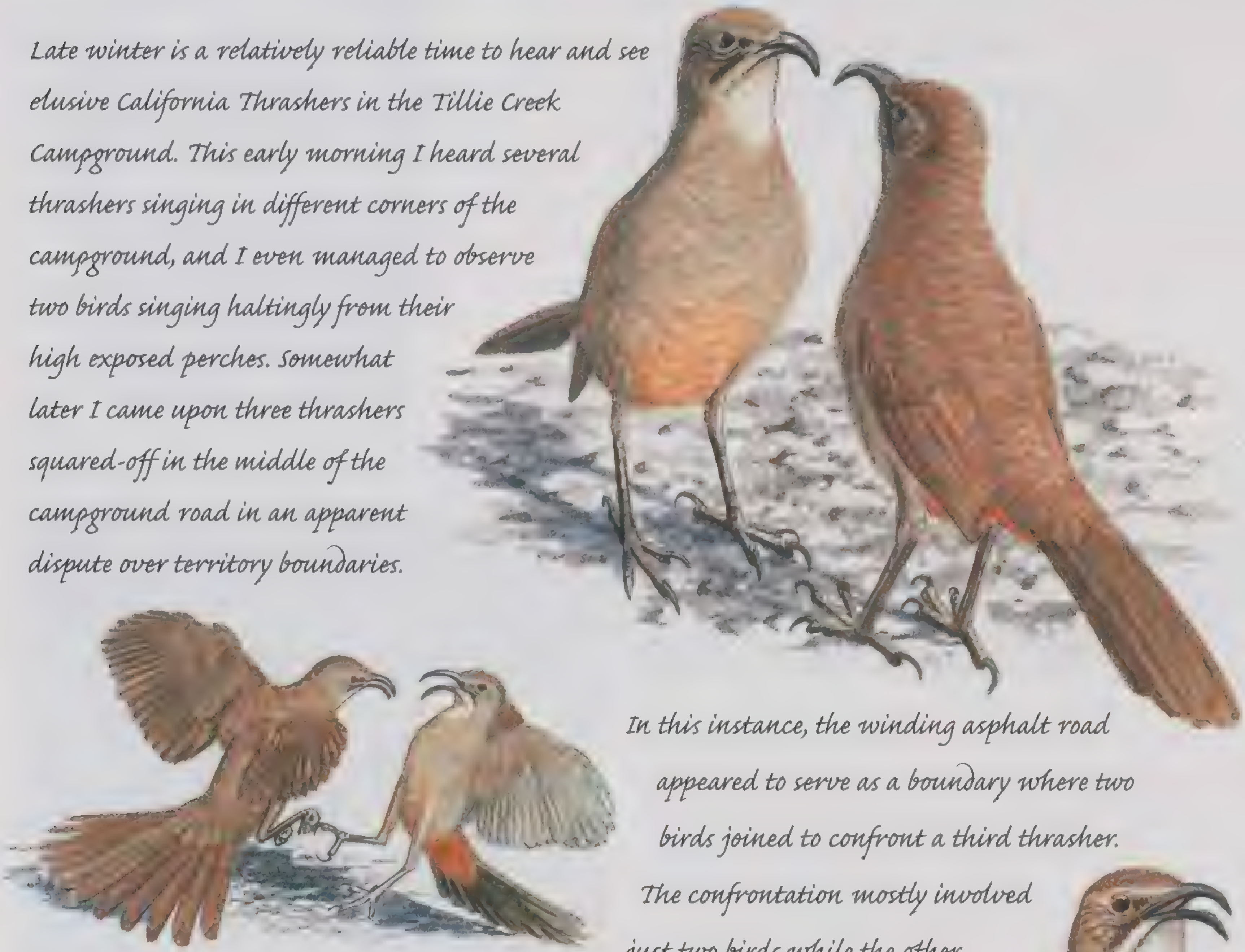
Now if you'll excuse me, I think I hear someone at the door. It sounds like a crowd.

Say, do you smell something burning? ◆

# *A Naturalist's Notebook*

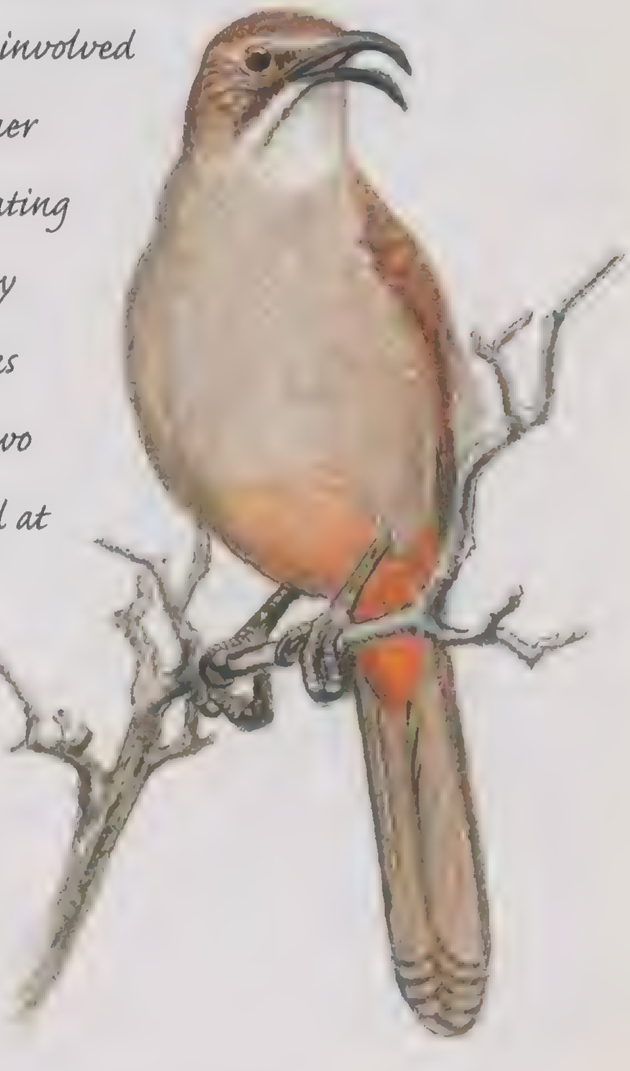
*by John Schmitt*

*8 February 2004, Kern County, California; Tillie Creek Campground*



*Late winter is a relatively reliable time to hear and see elusive California Thrashers in the Tillie Creek Campground. This early morning I heard several thrashers singing in different corners of the campground, and I even managed to observe two birds singing haltingly from their high exposed perches. Somewhat later I came upon three thrashers squared-off in the middle of the campground road in an apparent dispute over territory boundaries.*

*In this instance, the winding asphalt road appeared to serve as a boundary where two birds joined to confront a third thrasher. The confrontation mostly involved just two birds while the other followed along and watched. They moved along down the road's center, alternating walking abreast of each other in a hurried manner with brief pauses where they turned and faced each other, striking a stretched-up pose with their curved beaks tilted up, pale throats displayed conspicuously, and beak tips almost touching. Two of these face-offs resulted in brief, furious fights in which they leapt and stabbed at one another.*



*But most often the 5- to 8-minute dispute was tensely peaceful, with the birds even pausing to pick and scratch in the roadside debris, eyeing each other warily.*

*Quite abruptly the thrashers flew off in opposite directions—presumably into the core of their respective territories—where shortly the birds mounted their own high exposed perches and commenced singing.*

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WHILE STARING AT AN ORDINARY SWALLOW?

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